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ORGAN OF THE AMERICAN ASSOCIATION OF THE HISTORY OF MEDICINE AND THE JOHNS HOPKINS INSTITUTE OF THE HISTORY OF MEDICINE

Founded by HENRY E. SIGERIST

Acting Editor—OWSEI TEMKIN

VOLUME XXII SEPTEMBER-OCTOBER, 1948 NUMBER 5

TRANSACTIONS OF THE TWENTY-FIRST ANNUAL MEETING OF THE AMERICAN ASSOCIATION OF THE HISTORY OF MEDICINE

HELD AT PHILADELPHIA, PENNSYLVANIA

MAY 26 AND 27, 1948

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HENRY R. VIETS, M. D.

President of the American Association of the History of Medicine 1948-1950

SYMPOSIUM ON THE PHYSICIAN IN THE EIGHTEENTH CENTURY

GIOVANNI BATTISTA MORGAGNI

His Interests, Ideas and Achievements

SAUL JARCHO*

It is well known to students of literary history that classical authors are fated to remain on the shelf. From this elevated position they can be looked up to but need not be read. In eminent degree this principle applies to Morgagni, especially as regards American readers. Probably as a result of the necrosis which has beset our educational system, we have become to an increasing degree cultural isolationists, ignorant of other languages than our own. Consequently to the American student an untranslated author remains forever an unread author.

Of the numerous published writings of Giovanni Battista Morgagni—which weigh some 5.6 kilograms in the massive Remondinian edition of 1764—only the *De Sedibus* has been translated into English. So far as I have been able to ascertain, the *Adversaria Anatomica*, which formed the foundation of Morgagni's reputation in the learned world of the 18th Century, has never been done into English. The same is true of the *Epistolae Anatomicae*. The *De Sedibus*, which was published late in the lifetime of its already famous author, has had one and only one complete English version, that of Benjamin Alexander. This bears the date of 1769—two years before Morgagni's death. The edition by William Cook, published in 1822, is an abridged and rearranged compilation, which reminds us of a medieval tavern built from stones pillaged out of a Roman colosseum. The same is true of two minor editions published in Boston (1824) and London (1822) at about the same time. A small part of the great Alexander translation was reprinted in Medical Classics in 1940. Thus there has been no complete English version of the *De Sedibus* for 179 years, and even the *De Sedibus* represents only about two fifths of Morgagni's published work. With rare exceptions,[1] the

*This essay is dedicated to the librarians of several large Eastern cities. Their broad-minded interpretation of library rules made it possible for these studies to be completed in time for presentation at the meeting of the Association.

[1] Fiorentini (*Giovanni Battista Morgagni; primo saggio di bibliografia sintetica*, prefa-

Opuscula Miscellanea—which treat of anatomy, medical education, chemistry, medical jurisprudence, archeology and philology, and which include such interesting compositions as the letters on the death of Cleopatra—have never been published in any modern language.

According to Enrico Benassi,[2] the library at Parma contains no less than twelve large volumes of manuscript material by Morgagni. Out of this treasure Benassi brought to light the records of 100 clinical consultations. This inestimably valuable series of case reports was published in 1935. Most unfortunately it was issued in an edition limited to 500 copies, very few of which ever reached the United States. This rare volume is not listed in the Quarterly Cumulative Index Medicus and is unavailable in some of our better libraries. What other treasures may be hidden in the twelve manuscript volumes at Parma can scarcely be conjectured. In the colossal indices of Mazzatinti and Sorbelli I have found records of about 100 letters by Morgagni, and a few poems and songs. Much of this material has never been published.

These bibliographical details are cited in order to show why Morgagni remains almost inaccessible and unknown to contemporary American students, as he is unquestionably unknown to the majority of American pathological anatomists. The same is true *a fortiori* of Morgagni's contemporaries and predecessors—Lancisi, Valsalva, Bonetus, Benivieni, and a host of others, whose works have been neither translated nor reprinted and remain locked away in rare-book rooms, air-conditioned, dustless, and unread. We sneer at medieval or Renaissance physicians for paying excessive deference to Galen but at least these men had read Galen as we do not read and cannot read the writings of those whom we celebrate. Perhaps it is not idle to hope that a scholar will arise among us to reclaim the older authors from the darkness of the centuries, or from the darkness of our own ignorance. Here is an opportunity for a man or an institute.

In commenting on Morgagni's distinguished contemporary René Antoine de Réaumur—who enriched the world by researches on thermometers, cobwebs, porcelain, rope-making, artificial pearls, and myrmecology—Professor Wheeler[3] has used the adjective "polypractic." He sought thereby to characterize a supreme level of versatility which comes to mind

zione di Luigi Messedaglia. Bologna, Zanichelli, 1930. 66 pages) records an Italian translation of Morgagni's biography of Valsalva. This was prepared by R. Baroncini and published at Imola in 1887.

[2] Benassi, E.: *Giambattista Morgagni; Consulti Medici.* Bologna, L. Cappelli, 1935. 380 pages.

[3] Réaumur, R. A. F. de: *The Natural History of Ants.* Translated and annotated by William M. Wheeler, New York, A. A. Knopf, 1926. 280 pages.

especially when we think of Leonardo da Vinci.[4] This trait has perhaps existed in every age. In high degree it was characteristic of the era of Franklin, Jefferson, and Morgagni. A satisfactory discussion of any one of these men would require that each of his many aspects be considered in turn, and this is the method which has been adopted in the following study of Morgagni.

In the biography which was written by the eminent abbot Angelo Fabroni, emphasis is placed on Morgagni's early devotion to scholarship. This trait was well marked before Morgagni reached adulthood. It remained with him permanently and left a clear imprint on everything he did. It shows itself most clearly in the numerous passages in which Morgagni commented on the *Sepulchretum*.

Perhaps it is unnecessary to remind you that the *De Sedibus* started as an effort to correct and modernize the *Sepulchretum*, especially by the incorporation of materials derived from the experience of Valsalva and Morgagni. Morgagni constantly complained that the *Sepulchretum* was repetitious, poorly arranged, and, worst of all, inaccurate. This point he proved by the method of the genuine scholar—i. e. repeated recourse to original sources. Indeed, numerous passages in the *De Sedibus* demonstrate Morgagni's abiding preoccupation with textual problems. The evidence on this point is completed by a series of essays which treat of textual and philological subjects. These works include the *In Locum Vitruvii Medicum Epistola*, the ten letters on Celsus and Samonicus, a letter on Marcus Varro, four letters on the Roman agricultural writers, and a good many miscellaneous pieces.

An additional characteristic of the exact scholar is evident in Morgagni's meticulous attribution of credit to his predecessors and contemporaries. Valsalva especially receives frequent and honorable mention.

Several interesting instances of Morgagni's honest and meticulous scholarship came to light in 1935 when Dr. Enrico Benassi published Morgagni's clinical consultations.[5] The seventeenth record in the series contains a letter from one Pio Nicolà Garelli [6] narrating the history of a case of post-traumatic neoplasm of the skull. Many years later Morgagni used this case in the fifty-second epistle of the *De Sedibus*.[7] It is a

[4] "Sommo anatomico, sommo patologo e medico pratico, Morgagni fu anche astronomo, e geografo, storico e archeologo, così che il suo genio, che può senza esagerazione paragonarsi a quello del divino Leonardo, si proietta su tutto lo scibile dei suoi tempi." Piccinini, P.: *Medicina Storica e Medicina Sociale*. Milano, 1920, page 41.

[5] Benassi, E.: *op. cit.*

[6] Benassi, E.: *op. cit.*, pp. 69-70.

[7] *De Sed.* LII, 38-39.

pleasure to observe that he carefully gave credit to Garelli, in compliance with the best practices of those days and ours.

Not only was Morgagni expert in matters of scholarship and philology; he also commanded the techniques of the historian. Thus, in discussing experimental asphyxia, he says:[8]

> But as these experiments have succeeded differently with different men. even from the most ancient times, we must begin very far back, and from the desire of finding out the truth, we must well consider, and compare one with another, the ancient and modern experiments.

He then starts with Aristotle, and reviews the literature down to his own times. Unlike a medieval scholar, however, he does not stop with an evaluation of the literature but adds data derived from his own experiments.[9] In this way he exhibits simultaneously his mastery of the techniques and attitudes of the literary scholar, the historian, and the experimental physiologist. His adoption of historical perspective occasionally shows itself even in minor incidental remarks. Thus, in a discussion of the priapism of hanged men, he says:

> Paulus Zacchias, observing in his writings, that the same thing [sc. priapism] had been found in other hang'd persons as in this young man, assigns a reason for it, which is very suitable *to the time wherein he wrote*.[10, 11]

Morgagni's ability as a historian also appears in passages of greater scope. Thus, the seventeenth epistle of the *De Sedibus* opens with a splendid history of the development of knowledge of aneurysm from antiquity to the eighteenth century.[12]

Of the historical writings which compose a great part of the *Opuscula Miscellanea* I shall say nothing at this time. Many passages in these works possess distinct charm, others require a favorable bias. In large part they are antiquarian rather than truly historical. Attention should be paid to the essay on the life and writings of Valsalva, but time will not allow me to discuss it here.

In an epistle written in 1713 and addressed to Lancisi,[13] Morgagni dis-

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[8] *De Sed.* XIX, 20.

[9] *De Sed.* XIX, 30.

[10] All translations from the *De Sedibus*, unless otherwise specified, are from Benjamin Alexander's translation. All translations from other writings, unless otherwise credited, are by the author.

[11] *De Sed.* XIX, 20. Italics added by S. J.

[12] *De Sed.* XVII, 1-5.

[13] "De Anatomicis Eustachii Tabulis." Ad Illustrissimum, et Celeberrimum Virum D. Jo. Mariam Lancisium Intimum Cubicularium, & Archiatrum Pontificium Jo. Baptistae Morgagni Epistola. In Morgagni, J. B.: *Opera Omnia*. Venice, 1764. Vol. 5, part 1, p. 19.

cussed in meticulous detail the anatomical tables of Eustachius.[14] In the final paragraph of the letter he says:

De his vero, atque aliis, quae aut scientes praetermisimus, aut forte etiam in his tantis angustiis temporis haud satis vidimus, fortasse olim, si quid otii dabitur, in ea, quam concepimus, Anatomicorum Inventorum Historia scribemus.

About these matters and others which I have knowingly omitted or perhaps slighted in these difficult times, I may one day write, if leisure should ever allow, in my projected History of Anatomical Discovery.

Inasmuch as Morgagni lived 58 years after this passage was written, there is valid reason to suppose that the twelve packages of his notes which are deposited at Parma may contain at least a draft of the projected treatise. Whether this be true or no, it is abundantly evident that by his interests and published writings Morgagni was well equipped for the writing of a fundamental essay on the history of anatomy—and indeed well equipped to have been a member of this Association of historians of medicine.

In any civilized era from that of Marcus Varro to our own, a man who combined in eminent degree the patient learning of the scholar and the broad understanding of the historian might be expected to excel also as a stylist. In eighteenth-century European science the term "stylist" no longer was equivalent to "Latinist." Even in the preceding centuries Redi and Galileo had written in the vernacular. But Morgagni continued in the older tradition. All of the material which he intended for publication was published in Latin and presumably was composed in that language. This applies not only to the works on anatomy and pathology but also to the writings on philology and archaeology. It applies likewise to the numerous inaugural prooemia which introduced certain of the didactic lectures and to two short essays on medical education. These two noteworthy pieces, the *Nova Institutionum Medicarum Idea* and *De Via Atque Ordine in Medicina Tradenda Servato* will be published in translation by Professor Drabkin and your speaker. We feel that they contain values which should not be lost.

The clinical consultations (*Consulti Medici*) are in Italian, with few

[14] Concerning Morgagni's historical knowledge, as demonstrated by this incident, the following statement was made by an anonymous biographer (Elogio di Giambattista Morgagni. *Giornale De' Letterati* 5: 183-216, 1772): "Il Lancisi, con cui Morgagni aveva contratta stretta amicizia, lo richiese quali tra le trentotto tavole dell' Eustachio in quel tempo ritrovate fossero quelle, che potessero realmente chiamarse scoperto dell' Eustachio. In otto giorni egli rispose, e soddisfece sì pienamente al suo desiderio, che ne riportò la lode del più perito nella storia anatomica."

exceptions. Several poems by Morgagni are preserved at Bologna in the Biblioteca Comunale dell'Archiginnasio. These are in Italian and open with such lines as:

Il Cielo allor, ch'ogni sua forza unio [15]

and

Appena io giunsi a ber l'amabil onda [16]

Morgagni's Italian prose style has been praised especially by the Italians [17] and I will not undertake to review the verdict. His Latinity has also been praised, especially by Italians. With respect to this, however, it is possible to demur.

Morgagni's writings bear on almost every page the marks of his reading in specific Latin authors. He not infrequently makes direct quotation from Horace, Terence, Varro, Virgil, Celsus, and others. An especially charming allusion occurs in the *De Via Atque Ordine Ab Se in Tradenda Publice Medicina et Anatome Servato*, which was written in Morgagni's old age:

Annus enim octogesimus, ut olim M. Varronem, ita nunc admonet me, ut longe alias sarcinas colligam ante quam proficiscar e vita.

My eightieth year reminds me, as it once reminded Marcus Varro, to collect my baggage before I depart this life.[18]

It is evident on every page and in every subordinate clause that Morgagni's model of Latinity is Cicero. Unfortunately for the impatient short-winded American reader it was the Cicero of the orations rather than the Cicero of the epistles whom Morgagni copied.[19] In consequence we find ourselves reading discussions of dyspnoea and mania written in the style of a Roman prosecutor. Often the text serves admirably to carry its message. It is often clear, often forceful, and usually interesting. Not rarely however the style breaks out of control and Gargantuan labyrinthine monstrosities are produced which prove equally confusing in the Latin original and in English translation.[20] Here is *one sentence*:

[15] Mazzatinti, G., et al.: *Inventari dei Manoscriti delle Biblioteche d'Italia.* Torino, Firenze, et al., 1887-1945. Vol. 53, p. 22.

[16] Mazzatinti, G., et al.: *op. cit.* Vol. 53, p. 27.

[17] Benassi says of the *Consulti Medici* (*op. cit.*, page viii): "Questa collana di responsi clinici . . . costituisce infatti non soltanto una fonte preziosa per la conoscenza dell' arte medica del Settecento, ma anche un esempio preclaro della migliore prosa scientifica di quel tempo. . . ."

[18] Cf. Varro, M.: *Rerum Rusticarum* I. 1.

[19] See, for example Cardini, M.: La Mente di G. Battista Morgagni. *Morgagni 73*: 1221-1228, 1931.

[20] The translators of Morgagni did not conceal their anguish: "Owing to the per-

Etsi postquam Salius, Caesalpinus, Codronchius, Aromatarius confirmarunt, multos sine delirio esse hydrophobos, plures passim historiae, praeter eas quas ipse proferam extiterunt quae observationes comprobarunt Medicorum illorum longe praestantium, atque adeo Theodorus Zwingerus Hydrophobiam a Rabie sic distinxit, ut non modo illam sine hac esse posse, quod verum est, sed hanc sine illa, quod haud pariter est verum, esse non posse, docuerit; tamen quia Bonetus, qui caeteroquin aliquam hydrophobiae *salvo judicio* exhibet Observationem, sequi eos maluit, qui morbum hunc olim inter Maniae species reposuerant, et maniacorum dissectionibus dissectiones addidit hydrophoborum; nolo ab ejus ordine hic recedere, praesertim cum hydrophobiae fatear delirum supenumero adjungi aut melancholicum, aut ex hoc, et maniaco mistum, aut maniacum adeo, ut quod Medicus Illustris Meadius confirmat, *musculorum vires ad prodigium usque magnae sint*, videritque ipse, *virum in lecto fortibus funibus deligatum rumpere uno omnes nisu*.[21]

In the translation of Alexander the giant almost doubles its size:

Although since Salius, Caesalpinus, Codronchius, and Aromatarius had affirm'd, that many have the hydrophobia without delirium, a number of scatter'd histories, besides those which I shall now produce, came forth, that prov'd the observations of those very excellent physicians; and even although Theodorus Zwingerus has so distinguished the hydrophobia from the rabies, that he not only asserts the former may happen without the latter, which is true, but has asserted, that the latter can never happen without the former, which is not equally true; yet because Bonetus, who nevertheless gives one observation of the hydrophobia, in which the senses were unhurt, chose rather to follow those, who had placed this disorder, long ago, among the species of madness, and added the dissections of persons, who laboured under the hydrophobia, to those of the maniacal patients, I will not here recede from his order; especially as I must confess that a delirium, either maniacal, or melancholic, is frequently join'd to the hydrophobia; or at least a delirium compound of both: and that a mania may be join'd with a hydrophobia, the illustrious Mead confirms, who saw a man labouring under this disorder, "have the strength of his muscles so prodigiously encreas'd, that in his presence he broke through, at one attempt, all the ropes with which he was tied down in his bed."

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plexities of Morgagni's style, and the numerous parentheses by which his periods are frequently prolonged, Dr. Alexander found the subject often rendered extremely intricate. 'The difficulty of translation' says he, 'has been much insisted on. For where it has not been easy to conceive of an idea it must of course not be easy to represent and convey it properly to others. Indeed this difficulty of translation has been universally acknowledged by all persons well acquainted with the work in question, and so far has the conviction been carried by a gentleman eminent for his learning and abilities, as to make him assert it could not be translated by any one whatever.'

"Although in consequence of Dr. Alexander's having followed his author by a literal interpretation, most of the obscurities in the original pervade the translation, yet I have found the latter of essential assistance."

Cooke, W.: *The Seats and Causes of Diseases, Investigated by Anatomy*. By John Baptista Morgagni. Abridged, and Elucidated . . . by William Cooke. Boston, 1824. Vol. I, pp. vi and vii.

[21] *De Sed.* VIII, 19.

Occasionally the reader receives the impression that Morgagni has attempted to dispose of an entire subject within the compass of a single cosmic Ciceronian sentence: [23]

You perceive also, as the same Helwichius did not doubt, on the other hand, that those who had this interruption did really labour under a dropsy of the thorax; you perceive, I say, that he seems to have ascrib'd more than is just to a great number of observations, as I hinted above, which he also confirms by his own, made on a certain matron, and one likewise made on a matron by others; and you may also confirm by still other observations, and by those in particular which were made by the uncle of our Valisneri on a dyer, and by the illustrious Buchnerus on a certain man: but these, such as, though they are true, do not prevent those which Reimannus has oppos'd to them from being equally true, and especially the observation which carried that most experienc'd physician, Jo. Jacob. Vicarius so far, that from this symptom, in particular, he believ'd he could "swear, that the patient infallibly labour'd under a dropsy of the thorax"; yet in the thorax of this very patient, when open'd after death, "did he find not the least drachm of serum, or water," either in the left, or the right cavity; upon which he cried out, with an ingenuousness never sufficiently to be commended, and full of wonder, "Oh how fallacious sometimes are diagnostics!"

Even shorter sentences are at times annoyingly intricate:

Observationes (ab his enim incipiam, ut eundem fere quo supra usus sum, ordinem conservem) Observationes, inquam, illas quas animadverti sive ex veteribus, sive ex Recentioribus in Sepulchreto exhiberi potuisse, nec tamen exhibitas esse, illasque insuper quae ab altera ejus editione ad hoc usque tempus prodierunt, suis sub capitibus indicavi, quaecunque inter scribendum succurerunt.[23]

The observations, (for I will begin with them in order to preserve nearly the same method which I made use of above) the observations, I say; I mean those which I have observed to have been omitted in the Sepulchretum, from the ancient or more modern authors though they might have been included; and those moreover that have been made public since the second edition of this work; I have pointed out each under their proper heads, in as great a number as occurred to me when writing.[24]

With respect to criticisms of Morgagni's Latin style, a certain nationalistic bias can be surmised. Italian commentators find Morgagni a paragon of Latinity. A German author [25]—whose own style is notably intricate and obscure—complains of Morgagni's intricacy and obscurity. Up to the present time I have found no comments on his Latinity from Americans.

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[23] *De Sed.* XVI, 11.

[24] *De Sed.*, author's preface, paragraph 11.

[24] *De Sed.*, ibid., Alexander's translation.

[25] Falk, F.: *Die pathologische Anatomie und Physiologie des Joh. Bapt. Morgagni.* Berlin, Hirschwald, 1887. 112 pages.

Whatever be the importance of a graceful pellucid style, the stylistic aspect is assuredly not one of the most important in any consideration of Morgagni. While we tend to think of him as the founding father of modern pathology, it is probable that he thought of himself rather as an anatomist and as a clinician.

The anatomical discoveries of Morgagni are recorded in textbooks and need not be listed here. His eponyms so profusely abound in manuals of dissection that medical students regard Morgagni as a sort of ubiquitous ghost of the charnel house, haunting all parts of the cadaver, and ready to emerge at any moment from a gland or a duct.

Many of Morgagni's ideas and opinions about anatomy are adumbrated in his minor writings or in hints scattered through his more famous books. In a speech delivered in 1716 and entitled *Cum Primum ad Anatomen Tradendum in Theatrum Venisset* he starts by saying that he is overpowered at the thought of his having been preceded in the same anatomical theatre by Vesalius, Realdus Columbus, Falloppius, Hieronymus Fabricius, Vesling, and Molinetti. Yet so great have been the recent advances that if these great men were to come back to earth they would have trouble catching up with modern (eighteenth-century) anatomy.

One of the most striking characteristics of Morgagni's anatomical work is his constant recourse to comparative studies conducted in various species of animals. This proclivity was recognized by his contemporary biographer, the abbot Fabroni, who said that Morgagni engaged assiduously in the dissection of the larger animals, including fishes. In this respect Morgagni followed the tradition of Redi and Zambeccari, and that of Malpighi, Vallisneri and Valsalva—to say nothing of Aristotle and Galen.

Comparative dissection was employed by Morgagni not because of any habitual acceptance of a tradition and not only because of an inclination toward academic or theoretical studies. It was used quite often as a method of obtaining information about clinical problems. Thus in the very first epistle of the *De Sedibus*,[26] in his discussion of headache, he cites the case of a sheep which appeared depressed and showed abnormal muscular movements.

In the eighth epistle of the *De Sedibus* Morgagni treats at length of rabies. It had been traditional among Italian peasants that dogs are endowed by nature with a worm which develops under the animal's tongue. It was believed that the excision of this worm made dogs insusceptible to rabies. Morgagni proceeded to examine a series of animals.[27]

[26] *De Sed.* I, 6.

[27] *De Sed.* VIII, 35.

I believe it [sc. the alleged worm] is still taken out by the common people from some dogs in this country; for whereas I sought for it in fifteen, of every kind, magnitude, and age; I found it only in fourteen. . . . And indeed, as I rubb'd it betwixt my fingers, it seem'd to me, more than once, to approach almost to the nature of a cartilage.

While I adduce this excerpt to illustrate Morgagni's constant reference to comparative anatomy, it also suggests some appreciation of the importance of repeated observation, if not of statistical series.

It is no surprise to learn that Morgagni considered dissection indispensable in the study of disease. Thus in the *Nova Institutionum Medicarum Idea* [28] he says:

Deinde negabimus, ullius morbi naturam, et causas sine respondentibus cadaverum dissectionibus . . . esse proponendam.

Then we will declare that the nature and causes of any disease cannot be established without appropriate dissection of cadavers.

He very clearly recognized that dissection tended to destroy established ideas. In the sixteenth epistle of the *De Sedibus* he says:

For which reason, it is necessary you should the more closely attend, not only to those admonitions I have given you above, in relation to the signs of this dropsy, but also to my observations, which I am now to produce in their order; for most of them will be . . . of such a nature, that they unteach, rather than teach; for to do this is not without its advantages. . . . For those who have dissected or inspected many, have at least learn'd to doubt, when the others, who are ignorant of anatomy, and do not take the trouble to attend to it, are in no doubt at all.[29]

At the same time Morgagni was conscious of the fact that certain problems cannot be solved by dissection. Concerning fever, for example, he said the following:

But I do not imagine, that you expect I should shew you all the causes of so many diseases, and even of the death of this young man, when you observe, that no part but the head was brought to me to be dissected; and even if the whole body had been dissected quite through, that the cause of the acute fever . . . generally escapes the eyes of anatomists.

Since anatomy—and especially the anatomy of the great classical dissectors—was a science of structure, it is natural to ask, "What were Morgagni's opinions regarding the finer structure of the human body?"

This question is answered by a passage which occurs in the *Prooemium ad Praelectionem de Anatomes Elementis*.

[28] Paragraph 13.

[29] *De Sed.* XVI, 25.

Nam si partes humani corporis, ut ex fibrillis omnes constant, ita ex fibrillis ad unum eundemque modum dispositis omnes constarent: non tamen antea quid Partes quaeque essent, intelligi posset, quam quid ipsae fibrillae sint, expositum esset. . . . Itaque sive hanc ob causam, sive ob eam quam anno illo proposui quo primum ad Anatomen tradendum aggressus sum, non prius de ulla humani corporis Parte, quam de Anatomicis Elementis id est de Simplicioribus Particulis, dicendum est, quae videlicet nihil aliud sint, nisi fibrillae alio, atque alio modo dispositae.

Now since all the parts of the body are composed of fibrils, if they all were composed of fibrils arranged in one and the same way, it would be impossible to understand what the various parts of the body are until it had been ascertained what these fibrils are. . . . Hence, either for this reason or for the reason which I proposed the year I began to teach anatomy, no part of the human body should be discussed before the anatomical elements or simple components, which apparently are nothing else than fibrils arranged in various ways.

The exact evaluation of this statement will require further study. Almost certainly it is based on the doctrines of the iatrophysical school.

It is notable and even astonishing that this discussion of ultimate anatomical structure contains no mention of the microscope. Similarly in the *De Via Atque Ordine*, Morgagni describes his methods of teaching anatomy and his choice of topic for the classroom, yet there is no mention of microscopy. Indeed, references to the microscope are very rare in the entire corpus of Morgagnian writings. The most interesting is a spirited and thoroughly Ciceronian defense of microscopy, which is found in the third of the *Anatomical Epistles*.[80]

The almost complete avoidance of microscopy in the work of Morgagni is especially astonishing in view of the fact that Morgagni considered himself indirectly a follower of Malpighi. Indeed the abbot Fabroni recorded in his *Historiae Academiae Pisanae* that Morgagni " would boast that he was the grandson of Malpighi, by which remark he wished to imply that in anatomy, in which he so greatly excelled, he had received his instruction from Valsalva, who avowed that all his knowledge of physic had been derived from Malpighi." [81]

Quite obviously, what we need at this juncture is a conscientious and very detailed history of the application of microscopy to medicine. Such a treatise, I believe, would show (1) that microscopy did not make an important place for itself in medicine until after Virchow and Rokitansky were well launched in their life's work, (2) that prior to the time of

[80] *Epist. Anat.* III, 22.

[81] " Glorians ajebat Morgagnius se nepotem esse Malpighii, qua re innuere volebat, se rei anatomicae, qua tantopere floruit, doctrinam accepisse a Valsalva, qui totum illud, quod de physicis sciebat, Malpighio referebat acceptum." Fabroni, A.: *Historiae Academiae Pisanae*. Pisa, 1791-5. Vol. 3, page 609.

Virchow and Rokitansky microscopy was too crude to be of great usefulness, (3) that in the field of morbid anatomy microscopy is not exploited to the fullest extent in the great pathologic institutes of Germany, Austria, and Italy even at the present time. The proposed monograph, furthermore, would probably show that in its early days microscopy aroused opposition and attracted derision; the same happened when stethoscopy [82, 83] and sphygmomanometry [84] were introduced. Further study would probably reveal the influence of industrial and technological forces upon the elaboration of the instrument.

Thus far we have considered Morgagni as scholar, historian, stylist, and anatomist. Let us now examine his activities as experimenter, clinician, and thinker.

Although our habitual tendency to classify historical personages has caused Morgagni to be remembered as a morbid anatomist and a man of strictly morphological interests, his writings are replete with statements which make such an opinion untenable. Thus in the *Prooemium ad Praelectionem I* he outlined the course which his students were to follow:

> Partes ex quibus constructa sunt animantium corpora, aut vivas, aut mortuas Anatomici dissecamus; mortuas autem vel morbo vitiatas, vel secundum naturam se habentes. Vivas incidimus, cum in canibus lymphae, et chyli vias ostendinus, aut cum secto nervo, illico perire in membris quae adibat, movendi, ac sentiendi facultatem, demonstramus, aut alia agimus ejuscemodi.
>
> In our anatomical studies the component parts of the animal body are dissected either live or dead. When dead they are either impaired by disease or in their natural condition. Live structures are sectioned when we display the channels of lymph and chyle in dogs or when we demonstrate loss of movement and feeling in an extremity after the nerve has been cut, or when we do other things of the kind.

The record shows that Morgagni performed considerable numbers of experiments on the pulmonary veins,[85] the jugular vein,[86] and the pericardium.[87] In company with Vallisneri he performed splenectomy in dogs and found that the dogs did not become infertile.[88] He apparently collaborated with a man named Piso in some ligations of blood vessels.[89]

[82] Doolin, W.: Dublin's Contribution to Medicine. *J. Hist. Med.* 2: 321-336, 1947. See especially p. 328.

[83] Bennett, J. H.: *Clinical Lectures on the Principles and Practice of Medicine.* Third edition. Edinburgh, 1859, page 16.

[84] Fulton, J. F.: *Harvey Cushing. A Biography.* Springfield, Ill., 1946. pp. 190, 212-216.

[85] *De Sed.* V, 27.

[86] *De Sed.* XIX, 34.

[87] *De Sed.* LXVI, 10.

[88] *Adversaria Anatomica* III, 19 and II, 24.

[89] *De Sed.* XIX, 30.

He participated in a series of experiments on drowning.[40] In examining the report on experimental submersion the reader gains the impression that in this series Morgagni merely watched the experiments while the procedure was carried out by assistants. However he himself did the dissection of the drowned animals. In addition to doing his own experiments Morgagni paid great attention to experimental work published by others. Thus in the ninth epistle of the *De Sedibus*, which treats of epilepsy, the experiments of Ridley and Molinelli are discussed.[41] Similarly Galen's experiments on nerve section and those of Lower are considered in the fifteenth epistle, which has to do with disorders of respiration.[42]

I have already shown that in many of his investigations Morgagni employed the historical method. It is to be observed that he also employed what might be called the statistical method, albeit in simple form. This consisted of the establishment of a series of cases, collected from the literature, or from the experience of his teacher Valsalva, or from his own experience, or from all these combined. The series once assembled was then searched for a common anatomical factor.

This method is seen in the eighth epistle of the *De Sedibus*.[43,44] Eight cases of hydrophobia were collected, mainly from the *Sepulchretum*. The anatomic conclusions are given in the following sentences:

> And as there are many things in which those patients while living differ one from the other; so there are not fewer, but even more, in which their bodies differ after death. . . .
>
> . . . the dead [from hydrophobia] differ much more from one another than the living. For while they live, they certainly all agree in this, that they cannot drink without difficulty, and most of them even not without great horror and detriment. But in what peculiar circumstance the carcasses of them all agree, I do not see.

Almost everything that has been said thus far in the present treatise has been based on published works which have been available for more than a century and a half. We come now to an aspect of Morgagni which has been available for study only in the last 13 years. I refer to his work as clinical consultant. On this topic the principal evidence consists of the hundred clinical consultations published by Benassi [2] in 1935.

In these 100 cases Morgagni was attempting to offer diagnosis and treatment for patients most of whom he had not seen but whose history

[40] *De Sed.* XIX, 41.
[41] *De Sed.* IX, 21.
[42] *De Sed.* XV, 10.
[43] *De Sed.* VIII, 30-32.
[44] See also the description of the dural sinuses, based on a series of fourteen dissections, *Adversaria Anat.* VI, 1.

had been sent to him in more or less detail. His opinions as stated in the responses would seem to have been tempered by the desire to please recipients who perhaps were not in the forefront of scientific progress; hence we are not justified in assuming that the opinions expressed are always and necessarily his real convictions.[45] Moreover they usually lacked the corrective discipline of autopsy and hence tended to be more superficial than the ideas advanced in the *De Sedibus*, although they gain measurably in authority from the author's experience in anatomy. It is obvious therefore that the consultation notes could not possibly display Morgagni at his best. Yet they offer a mass of highly interesting evidence which must not be ignored.

The most surprising feature of the consultations is the frequency with which humoralistic explanations are advanced.

Benchè molti, e diversi non meno per la natura, che per la sede loro, siano stati, e siano gl'incomodi di questo Nobil Soggetto; nulladimeno tutti non difficilmente dedur si possono quasi da una sola cagione, cioè da fluidi viscidi, e lenti. . . . L'origine di tali fluidi è negl'ipocondrj, dove cagionano l'Affezione Ipocondriaca, e tutto ciò che l'accompagna in particolare di flatulento. Indi trasportati per le vie del chilo, e del sangue, e della linfa a diverse parti. . . .[46]

The symptoms of this noble patient are many and diverse in character and location. Yet they are all readily referable to a single cause—viscidity and sluggishness of the fluids. . . . These fluids originate in the hypochondrium, where they cause the Hypochondriac Affection and all that goes with it, especially flatulence. Then they are carried to various organs through the chyle, blood, and lymph.

In a somewhat similar way, the asthmatic son of a cachectic mother inherited sluggish thick humors, which pass with difficulty through a viscus poorly adapted to propel them—i. e. the lung.[47] Pannus [48] is attributed to stasis of blood in the conjunctiva. This produces erosions, especially in eyes or bodies which are excreting an erosive principle. The effect is increased if the blood is of inflammatory diathesis—i. e. thick

[45] The issue is well stated by Massimiliano Cardini, who says of the Consulti (*Morgagni* 73: 1241-1246, 1931): "Ma le teorie non sovrabbondano; ed esse rappresentano appena quel tanto che è necessario in lettere dirette a medici, che, quanto meno eccellenti erano tanto più dovevan vedere che egli sapeva anche filosofare; come, nel settecento, si diceva e come allora bisognava che tutti facessero, e tanto più, naturalmente, i medici di allora per coprire colla frondosità del dire la povertà di precise nozioni. Ed anche dovea farlo il Morgagni per i clienti, che voglion talvolta vedere il medico salire sui trampoli, e sentirlo dir cose grosse ed oscure e perciò belle."

[46] Benassi, E.: *op. cit.*, Consulto 10, p. 37.

[47] Benassi, E.: *op. cit.*, Consulto 38, p. 173.

[48] *Ibid.*, Consulto 28, p. 122.

and viscid. In view of these assumptions, it was felt that treatment should consist of the use of dulcifying subtances as well as of incisive plants which would counteract the diathesis of the blood. At the same time a foot bath should be administered in order to attract the inflammatory process away from the eyes. Pills of amber, aloe, and agaric, and pills of calomel should be given to fortify the effect.

The humors were likewise held responsible for neoplastic disease. Thus, in a child who was examined by Morgagni and two colleagues, a neoplasm of the clavicle was found.[49] The consultation report, signed by the three physicians, states that the lesion was inoperable and that treatment must be constitutional, in order "to sweeten the acrimony of the fluids." For this purpose the following remedies were recommended: a decoction of chicory; viper broth with china root, sarsaparilla, chicory, or a vulnerary plant. The patient was to be nourished with pullets that had fed on the flesh of vipers.

The prominence of humoralistic explanations in the consultation reports is surprising especially because we have come to associate the name of Morgagni with solidism. I have recently come upon a passage in which Morgagni adverted to this matter.

> Praeterea dispiciemus, facturi ne operae pretium sint qui separatim tradere instituant de morbis qui fluidas tantum afficiunt partes, quique tantum solidas. . . .[50]
>
> Then we shall consider whether it is worth while to maintain the traditional separation between diseases which affect the fluid components only and those which affect the solids only.

This passage suggests that Morgagni did not regard the distinction as a useful one and that he did not wish to be drawn into the discussion.

Acrimonious humors and irritating particles are the most common pathogens recognized by Morgagni in his work as a clinician. A subordinate role is assigned to atony. Thus Morgagni follows Galen in attributing diabetes to atony of the urinary passages:[51]

> . . . atonia, e rilassamento de' meati renali, onde più facilmente, e per conseguenza più prontamente, e più copiosamente del dovere lascino passare negli ureteri quel siero che più a lungo restar dovrebbe nel sangue . . .
>
> . . . atony and relaxation of the renal passages, whereby the serum which should remain longer in the blood passes out into the ureters more easily and hence more promptly and copiously.

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[49] Benassi, E.: *op. cit.*, Consul. 17, pp. 64-66.

[50] "Nova Institutionum Medicarum Idea," paragr. 13. In Morgagni, J. B.: *Opera Omnia*. Venice, 1764. Vol. 5. part 1, p. 6.

[51] Benassi, E.: *op. cit.*, Consult. 19, pp. 80-82.

This opinion is a historical regression, since Aretaeus had stated that in diabetes, despite the polyuria, there is no lesion of the kidneys.

Atony was also advanced as the cause of cerebrospinal rhinorrhoea. It was felt that the membranes of the nasal passages and paranasal sinuses had become atonic and consequently were less resistant to serous particles brought by the blood. The therapeutic indication lay in diverting the particles elsewhere by enemata and footbaths and in increasing the sensible and insensible perspiration.

In a case of amaurosis a combined etiology was suggested: atony of the solids in the head and abundance and acrimony of the fluids in the whole body.[88]

The full complexity and also the full antiquity of Morgagni's clinical reasoning are displayed in the report on a case of epilepsy.[88] The train of thought proceeds as follows: In the present case the epilepsy was caused by the healing of sores on the patient's leg; these sores were possibly syphilitic. It is unquestionable that syphilis sometimes causes epilepsy. There have been many cases of epilepsy caused by the closure and relieved by the reopening of sores in non-syphilitic persons. The indications are to remove the retained acrid and irritating substances, to quiet the spasms, and to strengthen the nervous system. The season (May) is suitable for medication. In this patient's temperament bile and heat predominate. To carry off the peccant matter the patient should take purges compatible with his temperament. He should also take pulvis Marchionis, an anti-epileptic powder, which consists of roots of peony, dittany, scraping of deer's horn, mother of pearl, and viscum. For an alternative anticonvulsant he might take half a scruple of amber and a few grains of cinnabar. For the syphilitic component of the illness he was to take a decoction of sarsaparilla and china root, and mercury. If the suspicion of syphilis is not strong, a dilute decoction of sarsaparilla and viper's flesh might be given. As an alternative a decoction of chicory and primrose might be used, followed by asses' milk or by diluted cow's milk. These remedies will not only correct the acrimony but will also relax fibers which either are unduly tense or are unduly susceptible to tension. The blood should be diminished by the use of the lancet and leeches, which should be applied to the feet rather than to the arms. A cautery wound should be made on the right side and should be kept open; this will prevent the convulsive attacks. If the patient feels that a con-

[88] Benassi, E.: *op. cit.*, Consult. 13., p. 49.
[88] *Op. cit.*, Consult. 16, p. 61.

vulsion is about to occur in his right foot he should apply a tight ligature to the leg or he should apply severe friction to the opposite leg. Finally he should regulate the six non-naturals, i. e. as Galen enjoins, he should take hygienic precautions with respect to (1) air, (2) food and drink, (3) rest and activity, (4) sleep and waking, (5) excretions and retentions, (6) emotions and thoughts.

The case of epilepsy just cited displays Morgagni confronted by a physiological disturbance which was accompanied by little or no gross anatomical alteration. In cases in which a definite gross lesion was present or where its presence could be surmised, his opinions are apt to seem less remote from those of the twentieth-century reader. Thus in a case of pulmonary suppuration his comment was as follows:[84]

Est autem praesens manifesta in pulmone suppuratio, ut purulentum sputum, tussis ope expectoratum, ostendit. Quamobrem abstergendum, purgandumque apostema est, tum glutinandum et ad cicatricem perducendum, intereaque dum haec fiunt symptomatum habenda est ratio.

A suppuration is obviously present in the lung, as is shown by the purulent sputum expectorated with the aid of the cough. Therefore the aposteme is to be absterged and purged, then conglutinated and induced to cicatrize. [Modern English: The abscess is to be washed and cleansed, then solidified and induced to heal.] Meanwhile attention is to be paid to symptoms.

In this instance Morgagni is somewhat closer to the modern clinician whose knowledge is based on pathological anatomy. The same is true in other cases in which Morgagni drew upon his anatomical knowledge for aid in clinical problems.[85]

The clinical consultations, with their relatively vague and superficial explanations of morbid mechanisms, must yield precedence in our esteem to the *De Sedibus*. To this work we must now turn for evidence on a fundamental part of Morgagni's system of thinking, namely his ideas with respect to etiology.

The third epistle of the *De Sedibus* contains the following comment about a case of epilepsy:[86]

The man was extremely plethoric, which his habit of body, and plentiful manner of eating sufficiently shew. He had eaten a full supper, and gone to bed sooner than usual; that is to say, with a stomach much fuller than usual, whereby he compress'd the aorta, which carries blood to the lower parts, so that a greater quantity of blood was necessarily thrown to the upper parts: and the quantity of blood carried to the head was so much the greater, as the situation of his body, in lying down,

[84] *Ibid.*, Consult. 7, p. 27. [85] *Ibid.*, Consult. 23, pp. 94 ff. [86] *De Sed.* III, 28.

was so much the more convenient for its ascent, and the less convenient for its return, as we have already prov'd. And if the distended stomach does not itself press upon the trunk of the great artery, at least it presses its own arteries, and others that are branches of it, and resists the motion of the diaphragm; so that by making respiration more difficult, it renders more difficult the return of blood from the head.

Here we have a purely mechanical explanation. It is also—and this is characteristic of Morgagni—a haemodynamic explanation. A somewhat similar type of reasoning is employed to explain the red spots which were found in the skin of a man who had died of tetanus. In a case of aortic aneurysm pressing upon the superior vena cava the turgescence of the aneurysmal sac was believed to have been increased by the drinking of wine, which increased the quantity of blood, and by the coldness of the season, which suppressed the insensible perspiration:[57]

For it was seated in such a manner, that it might press upon the trunk of the superior vena cava, especially when the patient lay down, and perhaps on the right side: in which situation, without doubt, it press'd upon that trunk, not only by its bulk, but also overloaded it by its weight; and both these properties were encreas'd so much the more, as the aneurysm, at that time, admitted more blood; inasmuch as being carried down through the trunk of the aorta, from the anterior, into the posterior part, not the ascending trunk in a recumbent posture, but rather the descending, so that it enter'd the orifice of the sac itself, and distended it, perhaps, so as it had never been before distended, either because the parietes of the sac were at length reduc'd to such a state, as to yield more; or rather, because there was either a greater turgescency of blood that night, or a greater quantity, by reason of a greater quantity of wine being taken in, than usual, or by reason of insensible perspiration being suppress'd, as it was then a cold season.

It is obvious that most of this is a iatrophysical or iatromechanical explanation and that the ideas about insensible perspiration are specifically attributable to the iatromechanist Santorio. The same combination of mechanical causes recurs repeatedly in the *De Sedibus*. In a case of what was believed to be retardation of the circulation because of sclerotic aorta and sclerotic valves,[58] a cold wind acted as accessory cause of death. This wind prevented loss of moisture from the blood via the invisible foramina of the skin; hence the volume of the blood was unduly large and the circulation was additionally hampered.

Weather was believed to influence the circulation in several ways, all of them mechanical. Heat and cold dilated and contracted the blood vessels and expanded and contracted the blood. Changes in climate also

[57] *De Sed.* XVIII, 26.

[58] *De Sed.* XXVI, 34.

affected the quantity of insensible perspiration. These factors in combination affected the quantity of the blood. Weather also influenced the vessels. All of these factors were called into play in a case of apoplexy: [59]

It will not be improper to subjoin something concerning the season, in which Tita, and so many others, died of a rupture of the sanguiferous vessels. There is certainly great danger of this disorder, either in the depth of winter, or the height of summer; the external vessels being strongly contracted by the one, and the blood greatly expanded by the other: and when the external vessels are contracted by cold, not only a greater quantity is thrown into the internal vessels, but the fluids are also encreas'd by the matter of insensible perspiration being obstructed; and when the blood is expanded by heat, the same thing happens, as if its quantity were encreas'd. . . . For the sudden heat of the weather caus'd an unusual expansion of the blood; when at the same time, by reason of the foregoing cold, the vessels were neither dilated, nor the blood diminish'd in its quantity by insensible perspiration. Besides, the fibres of the vessels were render'd so weak and relax'd by the long-continu'd rains, that they were on this account the more liable to rupture.

Occupation, like weather, is an accessory factor in the production of disease and may also act mechanically. Thus, the eighteenth epistle tells of a shoemaker who had an extremely narrow abdominal aorta and pronounced cardiac hypertrophy. The aortic lesion was regarded as congenital: [60]

Besides this deviation from the usual course of nature, which doubtless was a fault in the original formation, the man afterwards apply'd himself to such a kind of life as had a natural tendency to render the progress of the blood more difficult through that artery; for shoemakers not only, like other sedentary artificers, bend those lower large branches of the artery to angles, in more than one place, and keep them bent; but moreover, the more they bend themselves forwards, the more they compress the viscera of the belly, which in most of them are generally full of meat and drink, and by this means also compress the diaphragm, so that the motion of the blood is less thicken'd through the belly and thorax; the branches of the aorta, and the trunk itself, being constricted and reduc'd to a greater degree of narrowness. . . .

Throughout the *De Sedibus* much attention is paid to the influence of occupation on disease, and the diversity of the occupations mentioned by Morgagni forms one of the collateral sources of interest. Porters, farmers, weavers, prostitutes, trumpeters and men of learning—all are duly noted. In similar fashion the second index to the *De Sedibus* bears the following title:

INDEX the SECOND, REFERRING To Diseases and their Symptoms, to their External

[59] *De Sed.* III, 13. [60] *De Sed.* XVIII, 4.

Causes, to the different Stages of Life, to the various Employments of Life, and other Things of a similar nature.

We have seen that Morgagni leaned strongly toward the mechanical in his efforts to understand the functioning of the body in disease and in health. He stood squarely in the tradition of the iatromechanist Borelli—whom he often mentioned—and of Bellini, Santorio, and Ramazzini. Yet there is much evidence that Morgagni considered the operation of chemical causes also, although he appears to have regarded them as secondary. For example, in an attempt to explain dyspnoea occurring in the presence of a relatively small pleural effusion he said the following: [61]

What shall we say was the cause, why so little serum, if you compare it with the former histories, and that in one cavity of the thorax only, should render the respiration so extremely laborious? Was it because the serum, being impregnated with saline particles, did not so much press upon the lungs by its quantity, as it constring'd by irritating them now and then, with a kind of spiculae, as it were?

Mechanical and chemical causes are likewise assumed to act synergistically in cases of aortic aneurysm which are accompanied by destruction of bone: [62]

You, however, will account for the caries, and consumption, that I saw in the ribs and clavicle, either from the pulsation of the contiguous aneurism, or its corrosive ichor, as you shall think most proper; although even the pulsation, where it hollows out the parts into a caries, does not act without an ichor of that kind.

While mechanical causes and chemical causes figured most prominently in Morgagni's system of etiology, the great morbid anatomist did not exclude psychic causes. Here is an amusing discussion taken from the eighteenth epistle: [63]

And that from a cough of this kind, the natural motion of respiration is very frequently and violently chang'd and consequently also the motion of the blood. and that sudden repercussions thereof are made upon the receptacles of the blood in the thorax is evident; so it is no less evident, that in the passions of the mind, the course of the blood through these same passages is, sometimes, for a long while. variously and vehemently retarded, as the face, the respiration, and the pulse, do, at such times, certainly and jointly demonstrate: so that it is not to be wondered at, if, from a violent effort to suppress, or dissemble, indignation, that great aneurism should happen in the right auricle, as related by Dionis, no more than it is to be wonder'd at, that so great a dilatation of the heart, and aorta, had happen'd from the same cause, as related by Harvey. . . . And such is the force of human passions, in dilating the channels and receptacles of blood in the thorax, that Albertini with

[61] *De Sed.* XVI, 15. [62] *De Sed.* XVIII, 27. [63] *De Sed.* XVIII, 19.

justice deduc'd a reason from hence, why these dilatations are so seldom found in beasts, and so often in men.

In any examination of Morgagni's conceptions of etiology one must sooner or later consider his ideas concerning infectious and contagious diseases. With respect to at least one disease—rabies—he clearly recognized the presence of a specific agent. This is evident in the eighth epistle of the *De Sedibus*: [64]

For it is very certain . . . that a very violent hydrophobia has been generated without any bite, even only from the saliva falling on the naked skin. It is also certain, that this virus, being insinuated into any part of the body, may often lie latent for a long time, sometimes even for twenty years, not to say forty, without any injury; till being excited by some cause, whatever that may be, it break forth, and be carried, from the part originally affected, to others, and others, till certain destruction is the consequence. . . . For the hydrophobia is a peculiar species of angina, arising from a peculiar species of poison. Whoever, therefore, professes to have found out the nature of this disorder, must demonstrate the nature of this poison.

A belief in contagion is also implicit in Morgagni's well-known refusal to dissect the cadavers of persons who had died of tuberculosis, smallpox, or other dangerous fevers.[65] His belief in the revulsion or metastasis of illness has already been mentioned.[66] Revulsion was not limited to diseases of frankly infectious or inflammatory character. Thus in the case of a certain nobleman, the healing of scabies was held to have caused aortic aneurysm: [67]

As we found no disorder in any place . . . and especially that there was not the least trace of a cephalic, or hypochondriac affection, we both of us began to suspect, that the irritating and corrosive particles of the scabies, which he had repell'd, had not so much fall'n upon a ganglion, or any plexus of nerves, which go to the precordia, as perhaps upon the coats of the aorta, and brought on a tendency to dilatation.

Since Morgagni's notions of infection, like many of his other ideas, contain a considerable element of vagueness, it is refreshing to observe that he was not unmindful of their flaws. Thus in the preface to the fourth book of the *De Sedibus* he says: [68]

. . . non veritus sum in his libris non semel iis quoque Observationibus locum dare quae explicatus habent difficillimos.

More than once in these volumes I have not feared to give space even to observations which are extremely difficult to explain.

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[64] *De Sed.* VIII, 21.
[65] *De Sed.* XLIX, 32.
[66] See also *De Sed.* V, 13 and XXVII, 9.
[67] *De Sed.* XVII, 32.
[68] *De Sed.*, Book IV, preface.

Throughout the *De Sedibus* the reader is impressed by the fact that difficult problems are attacked in a forthright and systematic manner. The ancient, mediaeval, and modern literatures are thoroughly canvassed; the findings are supplemented by first-hand evidence derived from comparative anatomy and experimental physiology, and from the clinical and anatomical experience of the author and his colleagues. The complexities are appreciated and a reasonable conclusion is often attained.[69] Often a striking keenness and soundness of judgment are displayed.[70]

In the foregoing pages the versatile Giovanni Battista Morgagni has been studied successively as a scholar, historian, stylist, anatomist, experimental physiologist and clinician. We have examined in detail his conceptions of etiology and his ideas of contagion. We have seen the multiplicity of his interests and efforts. It is now necessary that we attempt an estimate of his magnitude.

When measured by the single criterion of newness, Morgagni's contribution would seem to have been greatest in the field of gross anatomy. This is evident from the numerous Morgagnian eponyms, which have attached themselves to almost every part of the human body. Such innovations occur in the *De Sedibus* but are somewhat less numerous and less important there. Nothing new was produced by Morgagni's physiological experiments. The medical consultations similarly added little to clinical medicine. The *De Sedibus* added innumerable observations to the facts of morbid anatomy and medicine but did not contribute conspicuously to our understanding of individual morbid processes. It added little to the clarification of basic concepts such as necrosis or inflammation or neoplasia.

What, then, is its merit? In this heroic book Morgagni assembled in a systematic and coherent manner massive quantities of carefully evaluated evidence which provided the first satisfactory rational and extensive determination of the anatomic location of disease.[71] He was the first great member of the series which included Bichat, Virchow, and Rokitansky, and which extends forward to the unknown giants of the future. This fact far transcends matters of minor anatomic and pathologic detail and constitutes Morgagni's most important and most enduring achievement.

[69] See e. g. *De Sed.* IX, 26. [70] *De Sed.* I, 8-9.

[71] Diepgen has shown that conceptions of localization were clearly enunciated by Fernel. See Diepgen, P.: Giovanni Battista Morgagni und die Pathologie. *Ztsch. für ärztl. Fortbild.* 29: 156-162, 1932.

DISCUSSION

HYMAN I. GOLDSTEIN, Camden, N. J.: Morgagni (1761) in his *De Sedibus* noted instances, known now as *regional enteritis* or *ileitis* (1932), reported also by J. W. Francis (1810), Combe and Saunders (1806), Abercrombie (1828), and B. B. Crohn and his associates (1932).

Morgagni gave an excellent description of *heart block* (Adams-Stokes syndrome), also reported by Marcus Gerbezius or Verbez (1718), Thomas Spens (1793), and Sir William Burnett (1824). He reported cases of *ruptured aortic aneurysm, aortic insufficiency, mitral stenosis,* and *endocarditis. Hydatid cysts of the heart* were known to Morgagni. He reported *pulmonary stenosis,* and ascribed the cyanosis to venous stasis.

Morgagni recognized the morbid changes in the mitral valve (mitral regurgitation and mitral stenosis), although the clinical features and diagnosis were first clearly made by James Hope (1832).

While Raymond de Vieussens (1641-1716) in 1715 described aortic incompetence, as did also William Cooper (1703), John Hunter, Hodgkin (1798-1866) in 1829, and Laënnec, Morgagni's report stands out clearly.

Aortic stenosis, first noted in 1646 by Riverius (1589-1655), Vieussens, and by Hope (1832) was, perhaps, recognized by Morgagni. He probably also knew of acute arteritis and aortitis.[1] Morgagni (1707) described the case of a woman with a characteristic picture of *angina pectoris,* and who, at necropsy, showed a dilated and calcified aorta. He knew of "bony" coronary sclerosis.

I must also refer to the two men, aged 68 and 64 years, with slow pulse rates (22 beats to the minute) and "epileptic" paroxysms (heart-block), described by Morgagni many years before Adams and Stokes (1827; 1846).

Morgagni certainly knew of the tormenting pain associated with "bony" coronary sclerosis, "bony" aorta and indurated valves of the aorta. Especially of interest are his reports of the woman being tormented with pain, because of the "bony" changes of the aorta and coronaries (1731).[2] Also, the case of the shoemaker, 33 years old, who suffered for some years (January 1739), and who died after complaining of severe chest pain, vomiting, and shortness of breath, within half an hour after reaching the hospital. The aortic valves were contracted, rigid, and hard. The ramifications of the coronary arteries were loaded with blood. The inner coat of the artery was variegated, with large opaque spots, which were the beginning of ossification, and these "bony" changes extended into the arch of the aorta.[3]

Morgagni knew of gallstones, and the occurrence of gallstones with coronary artery and myocardial disease.

Additional Morgagni reports of interest are: A woman of 60 years who suffered from a sensation of constriction and anxiety in the region of the heart. She died

[1] *De Sedibus,* Epistola 26.
[2] *Ibid.,* Epistola 23, Arts. 8 and 9.
[3] *Ibid.,* Epistola 18, Art. 2, pp. 162-163, ed. Venetiis 1761.

in March 1731.[4] An old man was dissected in 1743; he died because of strangulated hernia. The left coronary or anterior part of the heart was ossified to the extent of three digits, and twenty "black" stones were found in the gallbladder![5] Finally, in Epistola 27, Art. 2, in the case of a fat and masculine old woman, he found fourteen gallstones, in the left ventricle a foramen the size of a lentil, and blood in the pericardium. There was ossification of the vessels. This woman (1707, Venice) died of a ruptured myocardial infarct following coronary thrombosis.

Morgagni also described the misnamed *tetralogy of Fallot* with a patent foramen ovale. Please recall here that Nils Stensen (1638-1686) in 1671-1672[6] and Eduard Sandifort (1742-1814) in 1777 described the tetralogy of Fallot long before Etienne-Louis-Arthur Fallot (1850-1911) of Marseille published (in 1888) his account of *maladie bleue*.

William Hunter (1718-1783) in 1784; J. R. Farre (1774-1862) in 1814; Élie Gintrac (1791-1877) in 1824; Peacock (1812-1882) in 1866 (18 cases)—all of these men described instances of tetralogy of Fallot, yet no one has attempted to correct this error of priority credit; and the eponymic term should really be "Stensen-Sandifort-Morgagni tetralogy."

Finally, Morgagni gave perhaps one of the earliest recorded instances of *coarctation of the aorta*[7] in an adult male. Paris in 1789 discovered a case at necropsy. Laënnec saw several cases, and referred to cases previously reported by John Bell, Graham, and Astley Cooper. August Meckel (1827); Raynaud's (1828) case was in a man aged 92 years; Cruveilhier (1835); Chevers (1848); Wernicke (1875); and others—Peacock, in 1866, (collected 46 cases) reported cases of coarctation of the aorta. August Meckel called attention to the *erosion of the ribs* seen in some of these cases! Parenthetically, I may state here that Bonnett in 1903 reviewed his cases and those previously reported, and classified them in two groups: the "infantile" type and the "adult" type. It was Norman Chevers (1818-1886) of London, in 1845, who reported a case of typical *patent ductus arteriosus* (alone) in an adult, clinically, and proved at necropsy! Now, coarctation of the aorta (Crafoord and Nylin, of Stockholm, 1945) and patent ductus arteriosus (Gross and Hubbard, 1938-1939) are successfully treated surgically.[8]

All in all, Morgagni contributed much of interest and value in his *De Sedibus*.

BURTON CHANCE, Philadelphia: Morgagni's name is an honored one in ophthalmology, and is quietly borne in mind by all because of the occasional occurrence of

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[4] *Ibid.*, Epistola 23, Arts. 8 and 9, p. 238.

[5] *Ibid.*, Epistola 24, Arts. 16 and 17, pp. 252-253.

[6] Bartholin, Thomas, *Acta Medica et Philosophica Hafniencia*, I, pp. 202-203, 1671-1672.

[7] *De Sedibus*, Epistola 18, Art. 6, 1761.

[8] Gross, R. E. and Hufnagel, C. A. "Coarctation of Aorta; Experimental Studies," *New Engl. J. Med.*, *233*: 297-293, (Sept. 6) 1945.

Crafoord, C. and Nylin, G. "Congenital Coarctation of the Aorta and its Surgical Treatment," *J. Thoracic Surg.*, *14*: 347-361, (Oct.) 1945.

Gross, R. E. and Hubbard, J. P. "Surgical Ligation of Patent Ductus Arteriosus—First Successful Case," *J. A. M. A.*, *112*: 729, 1939.

a "Morgagnian cataract." Such a cataract is not a special form but rather the last stage of an ordinary cataract.

A senile cataract consists of a nucleus surrounded by the cortex enclosed in the capsule. The nucleus is dense while the cortex is soft. In the Morgagnian cataract the cortex undergoes liquefaction, and the nucleus floats in the milky fluid. In some instances the fluid becomes clear and the individual is able to see again. Certain cases have been reported as having had their sight restored at the performance of a pilgrimage to a shrine, well or other holy place.

The Morgagnian cataract is rarely seen today because few patients are allowed to go on into so great hypermaturity. At operation the lenticular body may have assumed a globular state so that it forces its way out and rolls down over the face of the patient.

Morgagni's conception of cataract was erroneous, for he believed cataract was really a "humor" which flowed behind the iris. It was not for a number of years that the true character of the lens and its position in the globe were comprehended. Much of this error depended upon the false position of the lens when found on section of the excised globe. Because of the softness of the globe, from lack of means for hardening of the tissues, the lens was likely to have been dislocated and to be found in the middle of the vitreous body, as depicted in early drawings, especially those in the Arabian works.

GEORGE ROSEN, New York: Not least among the achievements of the Enlightenment was its conquest of the past. While the first seeds of historical criticism were planted in the age of humanism and the Counter-Reformation, it remained for the Enlightenment to enrich the content and extend the scope of history.[9] In the medical field Albrecht von Haller represents the acme of this development. Dr. Jarcho's reference to Morgagni's historical interest thus helps to place him not only within the medical world of his day but also within the context of contemporary cultural and intellectual trends. This may be said too of that other characteristic to which Dr. Jarcho has referred, namely, Morgagni's polypraxis. Also a characteristic of the Enlightenment, this aspect may be seen in many of Morgagni's contemporaries—Leibnitz, Réaumur, Haller, Rush, Priestley, Franklin, and Count Rumford.

These two characteristics mark Morgagni as a man of the Age of Enlightenment, and I should like to suggest that his personality might be seen with even more understanding from this point of view.

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[9] See W. Dilthey, "Das achtzehnte Jahrhundert und die geschichtliche Welt," *Gesammelte Schriften*, Vol. III, Leipzig, 1927, p. 210; Friedrich Meinicke, *Die Anfänge des Historismus*, Vol. I, Berlin, 1936; Carl L. Becker, *The Heavenly City of the Eighteenth-Century Philosophers*, New Haven, Yale University Press, 1946, pp. 71 ff.

JOHN COAKLEY LETTSOM

JOSIAH C. TRENT

In the latter half of the eighteenth century, the city of London improved greatly over the gin-ridden, vice-infested town depicted for us by Hogarth and his contemporaries among the novelists. The general paving of the streets and foot-walks, brought about by the paving acts of the sixties, at least partially removed a potent source of filth and disease. An active building program included the arching over of offensive Fleet River, above which the great Fleet Market was constructed, the building of the Westminster and Blackfriars bridges, and the widening and clearing of old London Bridge. Rows of houses shot up in the fields around the city, on the west with careful planning under the direction of the great ground landlords, on the east at random and squalidly for the housing of an indigent, semi-industrial, semi-agricultural population. New streets were cut through the city, effecting the removal of many slum areas, but also occasioning the loss of several ancient and beautiful gates. Other old landmarks to fall before progress were the projecting shop and tavern signs, long a source of peril to passers-by. Marked by flat street numbers, the "greatest series of shops in the world," as Dr. Johnson described them, continued to offer to their customers the finest of the world's goods. Coffee-houses, pleasure-gardens, taverns, and theaters offered diversion to the populace—at least to those who could pay their way; foreign visitors often expressed amazement at the number and variety of places of entertainment available to Londoners.

The improvements in the material aspect of the city by no means involved a corresponding reform in the condition of the greater part of the population. Gin-drinking, with all its fatal consequences, had greatly decreased, chiefly as a result of repeated parliamentary acts curbing the sale of the liquor; nevertheless heavy drinking was common in all classes of society. Poverty was rampant, threatening to seize upon the most industrious workers whenever their source of subsistence should temporarily fail. Beggars and gangs of thieves, both adults and children, were numerous in the city; highwaymen were a constant threat to night-travellers on the borders of the metropolis. Mobs were frequent and rough in behavior, though inclined to be good-humored. Prisons, whether for criminals or debtors, were filthy and disease-ridden; the prisoners were subjected to a multitude of abuses. Throughout the city modes of

sanitation were primitive. Plague afflicted the poor, smallpox attacked poor and rich alike. The myriad noises of the city—the cries of peddlers and beggars, the creaking of wagons and coaches, the thud of hooves—made a ceaseless din; the air was sullied with smoke and dust. There was vast room still for reformation and improvement, and men arose to solve one by one these problems and others equally serious. Among these reformers and philanthropists an active part was taken by the man with whom this paper deals—John Coakley Lettsom.

Lettsom first set foot in London in the summer of 1766, a tall, thin young Quaker, with a deeply furrowed face and yellow complexion; he was "clothed in a long flapped coat," and wore on his head "a little bob-wig." Not yet twenty-three, he had just completed a five-year apprenticeship under Abraham Sutcliff, surgeon and apothecary at Settle, Yorkshire. Lettsom, a West Indian by birth, English and Irish by descent, had been sent to England in 1750 to be educated. He had attended a school conducted by Gilbert Thompson near Lancaster and had attracted the favorable attention of the great Quaker preacher, Samuel Fothergill, who, on the death of Lettsom's father in 1758, became the boy's guardian jointly with a West Indian relative. These guardians had arranged for the apprenticeship with Sutcliff. Now, on his first appearance in London, Lettsom bore a recommendation from Samuel Fothergill to his even more distinguished brother Dr. John Fothergill, scholar and philanthropist, physician to the aristocracy and to the wealthy merchants of the City.

Young Lettsom had money enough for only a year's stay in London and he was determined to make the most of it. Entering St. Thomas's Hospital as a surgeon's dresser, he also secured admission, by payment of a small premium, to the practice of the Physicians of the Hospital. Here, under supercilious Dr. Akenside, kindly Dr. Russell, and amiable Dr. Grieve, Lettsom evolved a system of study calculated to bring him the greatest possible benefit. Each morning early he visited and examined a number of patients and wrote out the symptoms and his diagnosis of each case. Afterward he compared his notes with the diagnoses and prescriptions given by the hospital physicians, frequently consulting medical books to extend his knowledge of the diseases encountered. Years later he wrote of his apprenticeship and of this London year in words that reveal his assiduousness and something of his motivation:

> Medicine is rather a practical than a brilliant art, and depends upon study as much as genius. Poverty led me to physic. I was placed with a country apothecary, whose fee was moderate. I had no particular predilection for medicine. I never

possessed genius; my memory was bad; I made dictionaries and tables of my own invention to assist memory; I formed indexes of what I read; and by industry acquired something. I came to London, and saw Dr. Fothergill; my ambition was inflamed, and I dared then to say, London shall be my theatre; but having no more money than to carry me through the hospitals, I could not attend many lectures, and upon this depended my improvement; for instead of hearing and learning of lecturers, I was compelled to learn at the bed of sickness. Here I saw nature, and learnt my art without the leading-strings of professors. I acquired an early habit of behaving with kindness to the sick, and having known want, I knew how to sympathize with distress.[1]

Lettsom made but few friends during this busy year. Dr. Fothergill treated him with great kindness, but there was some restraint in their relationship; the austere Quaker apparently took a deprecatory, if not a suspicious, view of the volubility and enthusiasm of his protégé. Lettsom, on his part, objected to a stiffness, a "perpendicularity," an incapacity on Fothergill's part for "social, equal, unreserved friendship."[2] Other friends, all Quakers, were his former teacher Gilbert Thompson, who had removed to London; Samuel Clarke, a printer, once the partner of the author of *Pamela*; James Beezley, whose liberal mind helped Lettsom to free himself from his hitherto narrow, sectarian opinions; and Richard Chester, one of the governors of St. Thomas's Hospital. From these men as well as from his studies, Lettsom learned much. London itself became his teacher also, for in the fall of 1766 he witnessed the terrible effects of a bad harvest and of excessive exportation of wheat; prices soared until the poor could not buy provisions, riots occurred throughout England and were averted in London only by prompt governmental measures for relief of the situation. And in sharp contrast, the summer of 1767 saw the arrival of the mighty Lord Clive from India, bringing, as Horace Walpole wrote, "a million for himself, two diamond drops worth twelve thousand pounds for the Queen, a scimitar, dagger, and other matters, covered with brilliants, for the King, and worth twenty-four thousand more."[3]

Having resolved to make London the scene and Dr. Fothergill the model of his future efforts, Lettsom left England in October, 1767, for his native West Indies. Of the estate his father had left, a neglectful executor had lost for him all but a little land and about fifty slaves. These

[1] T. J. Pettigrew, *Memoirs of the Life and Writings of the Late John Coakley Lettsom. . . . With a Selection from his Correspondence*, London, 1817, II, 60-61.

[2] *Ibid.*, I, Correspondence, 31-32.

[3] A. B. Mason, *Horace Walpole's England*, Boston and New York, 1930, p. 220.

he freed out of hand, as was becoming to a budding philanthropist. He then set up in practice in Tortola, earned £2000 in six months, gave half to his mother, and went back to London with the remainder. Thence he went to Edinburgh, where he was Cullen's pupil, then to Leyden, graduating M. D. at the latter university on the twentieth of June, 1769, with a thesis on tea. This is an interesting document, full of the far-flung generalizations possible to the medical student of the eighteenth century. Lettsom discourses at length on various experiments he has made, with himself, with his friends, with frogs, concluding that "both Green and Bohea tea manifestly possess an antiseptic, and astringent power applied to the dead animal fibre," [4] but a sedative and relaxing effect on the living organism. He attributes this latter effect rather to "an odorous, volatile, aromatic principle," than to the warm water in which the tea is consumed. Suggesting that the universal use of tea may be responsible for the general decrease in the strength of the human constitution observed during the past few generations, he observes that inflammatory diseases are in consequence much rarer:

> This change and diminution of inflammatory diseases, however brought about, tho' it may free us from the attacks of many violent symptoms, is nevertheless productive of more pernicious effects, and more troublesome complaints, than the former, both with respect to number and degree of violence. A multitude of Diseases, & complicated ailments have succeeded, to which our ancestors were strangers. Our Bodies have lost that strength, we admire in our ancestors, and become enervated, and liable to more diseases; and those depending upon relaxation and debility are now endemic. Hence that frequency of Hysterics in both Sexes, the Hypochondriasis, Palsy, Cachexy, Dropsy &c.
>
> Nowithstanding what has been advanc'd, I wou'd by no means conclude, that Tea is the sole cause of all these complaints; for luxury of every kind, to please the palate, has almost everywhere extended its influence, & even enter'd our Kitchens and Cellars, and contributed its share in the production of those diseases with which we labour. Under this head the frequent use of spirituous liquors stands foremost. . . . But why does this custom so frequently occur? The answer is obvious. The œconomy of the whole frame rendered weak & feeble by the constant and daily use of drinking Tea, and being sensible to debility and oppression, leads the trembling hand, to seek a temporary relief, in some cordial, in order to refresh and excite again the system. Hence such almost by necessity fall into a habit of Intemperance, and alas! Bacchus may now-a-days be represented under Petticoats.

The young author in a moment modifies this terrifying picture of the awful ends to which tea-drinking may bring us, by an admission that tea

[4] This and the following quotations from Lettsom's dissertation, *Observationes ad Vires Theae Pertinentes* (Leyden, 1769), come from a manuscript English translation, signed "W. C.," bound with a copy of the dissertation in the author's collection.

derives much of its peculiar harmfulness from being taken with hot water. The hurtful effects of this element are too numerous to be recounted but, in sum, " it is generally agreed, that taken in so large a quantity as is customary in drinking Tea, it must produce very diluting effects on our fluids, and prove greatly relaxant to our solids." Then, after admitting that tea " may be exhibited to great advantage, as an important and agreeable medicine," the student makes a general prescription for all those too deeply habituated to tea-drinking to give it up:

> I wou'd therefore advise such not to prepare it in the usual manner by Infusion, or pouring hot water upon the leaves, but by boiling the Tea, a little while, in order that the odoriferous fragrant principle may be dissipated, and the bitter astringent part may be better extracted. Lastly it shou'd neither be drank hot, or strong, and sugar shou'd be used, with the addition of a large share of milk.

After his graduation Lettsom visited Paris, where he met a number of men distinguished in science, and then made the rounds of the great health-resorts of Europe. Thereafter he returned to London and prepared to settle down to the practice of physic. In Mr. J. J. Abraham's biography of Lettsom, we find some interesting glimpses of the young doctor at this period, in the form of excerpts from the diary of Betty Fothergill, a niece of Lettsom's patron.[8] A sprightly young lady, she had Lettsom as her escort on several expeditions to view the sights of London—the portrait of Corsican Paoli displayed in the shop of Dilly the bookseller, St. Paul's Church, the zoo near Buckingham Palace, the drawing of the Lottery at the Guildhall, and so on. Betty had known Lettsom in former years; she now found him " rather improved than otherwise " and more diffident, " by what means " she did not " pretend to determine." He occasionally spent an hour or two at the Fothergill house at Harpur Street; on one such morning, " Part of the time was spent in examining and regulating a cabinet of beautiful and curious shells, and part in conversing on poetry and poetical works, a subject which the Dr. is fond of." Betty apparently found the doctor a loquacious and interesting companion and his volatile personality intrigued her more than a little, but she could not bring herself to trust or respect him.

Later as they bear on Lettsom's character, Betty's remarks will be quoted more fully. Meanwhile we must see him married—an event which united him, on July 31, 1770, to Miss Anne Miers, the daughter of a wealthy tin-plate worker. Considerable financial gain resulted for

[8] J. J. Abraham, *Lettsom: His Life, Times, Friends and Descendants*, London, William Heinemann, 1933, Chapter V.

Lettsom, and Betty makes it clear that she thought his motives utterly unromantic and mercenary. If this were the case, Lettsom's friend and biographer Pettigrew gives a novel interpretation: "By this marriage Dr. Lettsom acquired a very considerable fortune, which enabled him to exercise those acts of beneficence (which had hitherto been in a degree confined), upon a more extended scale." [6]

Launched thus upon his profession, with financial security at his back, Lettsom had reached the sphere in which he desired to pass his life. From 1770 until his death in 1815, he pursued indefatigably the duties of a physician, earning wealth, honor, and envy. He followed his model Fothergill in all things: in devotion to medicine, in philanthropic endeavors, in study of the natural sciences. In one of his letters he presents his conception of the pattern physician of his time:

> There never was a period more honourable to the professors of medicine, than the present, when the gentleman, the scholar, and the philanthropist, are combined in so many numerous respectable individuals of the faculty. Most of the charitable institutions have arisen from their suggestions, and have been supported by their unremitting attention and pecuniary aid. In the most pestilential diseases, they approach in their persons the infected bed of sickness, and momentarily devote their lives to preserve those of others; without the command of leisure or care to themselves, they are the source of comfort to society, and the guardians of health to their friends. By their wisdom and judgment, they discover improvements, and excite attention to their execution for the public good.[7]

Such was the difficult rôle that Lettsom had set out to play; it is a tribute to his powers that he succeeded in performing all of these functions well.

When Lettsom became a physician in London he was twenty-six years of age. To rise to eminence in a metropolis crowded with doctors—and with very successful quacks as well—required great energy and industriousness, and these qualities Lettsom had in full measure. He wrote once of a dream he had of Elysium, in which the spirit of Dr. Fothergill remarked that Lettsom combined "the volatility of a Creole with the plodding industry of a German." [8] The self-judgment, dreamed or otherwise, was justified by his unremitting labor. He was in harness day and night for over forty years. Every morning before breakfast poor patients assembled at his house, seldom less than fifty in number, often twice as many. After breakfast he began his calls on well-to-do patients and on the poor confined to their beds. These visits occupied him throughout the

[6] Pettigrew, *op. cit.*, I, 32.
[7] *Ibid.*, II, 399.
[8] *Ibid.*, I, Correspondence, 47.

afternoon, nor were his evenings free from urgent summons. Many of his articles and the majority of his letters—he had about a hundred regular correspondents in England and abroad—were written in his carriage as he made his rounds. In 1795 he wrote to one friend:

> As I live in carriages, seldom having less than three pair of horses a day, and neglecting my meals, except once a week that I dine with my wife I have some time to preserve my correspondence, having always, in the carriage, pen, ink, and paper, to amuse myself if I do not amuse my correspondents.[9]

In the same letter, with twenty-five years of his career behind him, he computed that he had attended over eighty-two thousand patients.

Such energetic application could hardly have gone without its due rewards. By 1783, Lettsom was earning £3,600 a year, by 1786, £4,500, and from 1786 until 1800 between five and twelve thousand pounds annually.[10] The magnitude of these sums may be best understood if one realizes that in 1800, during the inflation occasioned by the French War, highly skilled male textile-workers in the great manufacturing towns lived and supported their families upon a wage not higher than eighteen shillings a week—about forty pounds a year. With his ample earnings Lettsom was able to maintain two considerable establishments, his town residence in Sambrook Court, Basinghall Street, and a country estate, Grove Hill, Camberwell.

Lettsom always entertained, or at least expressed, a highly idealistic view of the physician's office. A single example of his many rapturous passages on the subject will suffice:

> This is the highest and most divine profession, that can engage the human intellect. . . . What can equal the dignity of having so many lives intrusted to your decision! What more divine, than to soothe the afflicted, and soften agony! What more sublime than to restore to life the victim of disease! I envy not the prince on the throne, nor the sultan in his harem, whilst I enjoy the confidence of the sick chamber, and the blessings of the restored. I love my profession, perhaps too much. It loves me, and I have no objection to die in the chamber of malady, provided I can mitigate it in a fellow creature.[11]

He manages to be equally sentimental in describing the physician's relations to the family of a deceased patient:

> the sympathy of the physician makes him appear almost as one of the family, and mutual anxiety begets mutual endearment. This I have felt and seen daily, and sometimes the pleasures of rational melancholy . . . are the most permanent, and the most consolatory to a feeling heart.[12]

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[9] *Ibid.*, III, 340. [10] *Ibid.*, I, 149. [11] *Ibid.*, III, 341. [12] *Ibid.*, II, 56.

And again,

> when in the physician, the friend and the divine are combined, his affection, his good sense, and his sympathy, pours into the afflicted the oil of comfort; he soothes the pangs of woe; he mitigates the distress, he finds out something in the wise dispensations of Providence that he carries home to the bosom of affliction. Here it is that he is truly a guardian angel . . . he is everything that Heaven in kindness deputes, to soften, to dissipate misery.[18]

Beyond the curing of patients and the consolation of families, Lettsom's professional accomplishments were numerous. In 1770, with several other philanthropists, he founded London's first General Dispensary; he was elected one of the physicians of the charity in 1773. He was one of the founders of the Medical Societey of London in 1773 and made liberal contributions to the society, including a meeting house in Fleet Street and hundreds of books on medical science. He established an annual gold medal, the Fothergillian, to be presented to the author of the best essay on a subject proposed by the society. His own medical writings were voluminous, including *Reflections on the General Treatment and Cure of Fevers* (1772), *The Improvement of Medicine in London, on the Basis of Public Good* (1775), *History of the Origin of Medicine* (1778), *Observations on Human Dissections* (1788), and myriad articles in the transactions of the Medical Society of London and similar societies.

Lettsom's labors in the cause of vaccination were among his most lasting contributions to medicine. Before Jenner's discovery he had heartily sponsored inoculation and when he was informed of the efficacy of the cowpox vaccine he was slow to accept it. After a strict investigation, however, he became one of Jenner's most active supporters. He sponsored vaccination among his noble and wealthy friends and among his poor patients as well, and wrote many letters to the *Gentleman's Magazine* on its behalf. He sent samples of vaccine to his friends abroad and was responsible for the introduction of vaccination in America by Dr. Waterhouse of Massachusetts. Lettsom's *Observations on the Cow-Pock*, published in 1801, earned high praise from Jenner himself.

In his professional capacity Lettsom carried on several campaigns against one or another of the quacks that infested London. In 1776 he exposed the fraudulent practices of Meyersbach, the Urine Quack, who had counted David Garrick, Lord Lonsdale, and the Bishop of London among his patients. Three years later he attacked a money-getting scheme involving the foundation by subscription of a medical society and dis-

[18] *Ibid.*, I, Correspondence, 27-28.

pensary for the private use of the subscribers. He fared badly in a more ambitious campaign begun in 1806, when he persuaded the editor of the *Medical Journal* to print each month an anonymous letter attacking one of the advertising quacks in the country. Lettsom directed the first of these letters against Brodum, proprietor of the Nervous Cordial and similar preparations, alleging that Brodum's medicines had killed thousands, and making other uncomplimentary remarks about Brodum's character and past career. Brodum promptly sued the publishers, who, on seeking justification of the charges, found it impossible to prove that a single person had ever taken Brodum's medicines. The case was finally settled by arbitration, Lettsom paying the lawyers' fees on both sides and Brodum receiving a complete white-washing in the *Journal*.

In spite of his many exertions in his profession Lettsom found time and energy for excursions into other sciences than medicine. Natural philosophy was a fashionable hobby of the day, and Lettsom owned, and was familiar with, the "Mechanical and Philosphical Instruments from which Ferguson formerly lectured,"[14] including an air pump and an electrical machine. He was a student of mineralogy, and collected numerous specimens; he was a botanist, and his villa at Grove Hill was adorned by a botanical garden, each plant distinctly and fully labelled. Botany led him to horticulture, and following the example of Sir Richard Jebb he became an enthusiastic sponsor for the introduction of the mangel-wurzel in England. His writings on natural science included a *Naturalist's and Traveller's Companion* (1774) which went through three editions in his lifetime.

A man of his time in his devotion to scientific pursuits, Lettsom was equally in tune with his contemporaries in his lifelong devotion to charitable and philanthropic pursuits. The growth of Dissent in England in the seventeenth and eighteenth centuries had resulted in a vast awakening of the social conscience. Dissenters—Unitarians, Independents, and Quakers, even before the Methodists—led England along the paths of social reform. Charity schools, asylums, hospitals were founded; local Friendly societies cared for the sick and the homeless. Individuals set noble examples: the famous John Howard invaded the prisons of Britain and Europe and brought to the public attention the terrible conditions existing therein. Lettsom's patron, Dr. Fothergill, opened his purse to many a deserving cause and gave direct assistance to needy men of talent,

[14] John Nichols, *Illustrations of the Literary History of the Eighteenth Century*, London, 1817-1858, II, 685.

among them the traveller Jonathan Carver and the botanist William Curtis. It was only natural that Lettsom should follow in the same course, yet the enthusiasm and the extravagant generosity which he brought to the cause of humanitarianism speak for a deeper motivation than the merely imitative. Whether impelled by religious conviction, or by heartfelt sympathy for the suffering, or by a desire to earn reputation and respect by his foremost rank among the humane—and one concludes that all these motivating forces were in operation—whatever his purpose in so doing, Lettsom throughout his career devoted himself, his purse, and his pen to philanthropy.

Some of Lettsom's expressions on the theory of humanitarian action are worth quoting. They are uniformly couched in the florid language of that time, yet there is a sincerity in them that speaks for itself. And there is a shallowness in them as well, in that Lettsom's philanthropy shows too much of a tendency to cure immediate and obvious evils without seeking out and attacking the economic sources of such evils. Though a Whig in politics, Lettsom held aloof from the radicals of his day. It was a part of his creed that society must include a large class of artisans earning no more than the bare expenses of life; when sickness or temporary unemployment come, these people must suffer and starve. To cure this evil all he could suggest was charitable action in the time of need:

> The poor, from the occasional want of employment and wholesome food, from exposure to all changes of the weather, and from various other causes, are often visited with sickness, as well as with poverty: one, indeed, is consequent upon the other, and thereby they become the immediate objects of assistance. It is then peculiarly necessary that the hands of Pity should be extended to soften the pangs of a sick bed, and to restore health and ease to the poor in affliction.
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> * * *
>
> If affluence and independence could universally prevail, the benevolent would not experience the inexpressible pleasure of relieving the distressed; neither could there exist that grateful satisfaction, which modest indigence ever feels from well-timed succour.[15]

He thought of his own wealth as held in trust for charitable purposes; in 1783 he wrote to William Cuming:

> I have often calculated that if all the money in the English European dominions were equally divided, each person would possess about forty-five shillings. All I possess above this sum, is so much more than I deserve; for what right have I to keep more than my share? For so much therefore I am an accountable steward;

[15] Quoted from Lettsom's essay "Of the Improvement of Medicine in London," by Pettigrew, *op. cit.*, I, 39, 44.

as I conceive it to be superabundantly given to me, to disperse and to make those happier who have not forty-five shillings in the whole.[16]

The indiscriminate charities into which such enthusiasm frequently led Lettsom, were gently criticized by Cuming in a letter written two years later:

I love benevolence and liberality when judiciously exerted. I esteem you highly, my friend, for your generous and beneficent disposition. Benevolent men are the soft easy cushions on which the artful and designing repose and fatten. Your character for extensive beneficence and liberality is so diffusively known, by the numberless proofs you have given of it, in the various objects you have relieved, that every needy projector, every visionary schemist, every one in short who is reduced to penury, though reduced perhaps by extravagance and criminal excesses, flee to you as to a certain asylum, depend on having their wants relieved, and a supply of money given them, to be spent perhaps in the gratification of those schemes and appetites that reduced them to the condition in which you first found them. I do not mean to check and restrain your bounty; but in some cases it appears to me, that by a strict attention, it might be directed to flow into more proper channels. Your benevolent inclinations, I am well convinced, would prompt you to relieve distress and penury wherever found, within the limits of your acquaintance, but that it is far beyond your ability; and I am sometimes sorry to see you beset by a group of lazy, indolent, self-interested people, who take advantage of your generous disposition; and after having once tasted of your bounty, claim a right to a repetition of it as often as their necessities require it.[17]

We have no reason for believing that Lettsom allowed these friendly admonitions to check his course. Several times he gave his charities as the reason for his finding it necessary to labor so diligently in his profession, once firmly established there.

It never was in my power to grow rich. With an income of many thousands a year by my profession I cannot save money. To the Giver of all our blessings we are answerable; and when I think of that interesting query, 'How much owest thou unto thy Lord?' I reflect how indispensible is our duty to pay what we owe; but how can we pay it otherwise than by dispensing what we enjoy among those who lack?[18]

Lettsom made, in fact, such extravagant and numerous contributions to every needy individual, institution, or cause that he encountered, that some years before his death he was forced to sell his country home and his collection, and to curtail his expenses.

[16] Pettigrew, *op. cit.*, I, Correspondence, 40.
[17] *Ibid.*, I, Correspondence, Letter XLI, Cuming to Lettsom, August 22, 1785.
[18] *Ibid.*, II, 35.

Lettsom's philanthropy worked in a variety of ways. The majority of the poor patients who came to him for treatment—and they were many—paid no fee. Quite the contrary: many could be certain of profiting by the visit, either in money and medicine, or in food and wines from the doctor's own store. His charity knew no bounds: on being waylaid by a highwayman one evening, he begged the man to come to him for help; when the man did so, Lettsom was instrumental in restoring him to a reputable way of life. He was prompt also in giving aid to men of talent, materially assisting William Curtis, the family of Jonathan Carver, and many others.

Aside from these many private charities, Lettsom took an active part in the various humanitarian movements of his day. Prison reform, made a burning issue by the work of Howard, was continued in England by James Nield. At the request of John Nichols, editor of the *Gentleman's Magazine*, Lettsom arranged to have Nield prepare a series of letters on prison abuses for the magazine. This Nield consented to do only if Lettsom would at the outset write prefatory letters to accompany his. Seventy-seven of Nield's letters were published. Lettsom himself invaded the prisons professionally and wrote a number of articles calling public attention to the need for sanitary reform therein. Other humanitarian movements in which Lettsom joined were the establishment of the London Dispensary, the General Sea-Bathing Infirmary at Margate, and the Humane Society for the restoration of persons apparently dead by drowning. On all these subjects and others as well, he published numerous articles and pamphlets, many of which were brought together in 1801 in his *Hints Designed to Promote Beneficence, Temperance, & Medical Science*. This is a work of eminent practicality, a handbook for philanthropists, bringing together recipes for soups and potato bread, sketches of iron cot frames, plans for infirmary buildings, and rules and regulations for the administration of a variety of charitable organizations.

One other aspect of Lettsom's philanthropic career should be touched upon. Throughout his life he corresponded regularly with a number of Americans, among them Rush and Waterhouse. These men made known to him their problems and needs and he was prompt and generous in sending what he could to help them and the institutions which they sponsored. Harvard, Dartmouth, Dickinson, and Bowdoin Colleges were among the recipients of his gifts including books, natural history specimens, mineralogical specimens and other materials.

He was approached in 1790 by the managers of the Pennsylvania Hospital who were attempting to build up the Hospital library; they asked

his aid in selecting "the most approved authors." He readily consented, and for a number of years not only gave judicious advice concerning acquisitions but also contributed a number of volumes from his own library. He warmly recommended the purchase of old as well as modern authors, and of French and German works as well as English. One of his letters to the managers is of considerable interest:

> Considering your province as in a high degree progressively improving, and that an extensive knowledge of medicine is conducive to the welfare and happiness of the community, you cannot be too attentive to condense within your command an enlarged store of medical books; it has given me singular pleasure in affording my aid to so useful an object. Practitioners should not only know the discoveries of the present, but likewise of the preceding times, otherwise they would be in continual danger of assuming discoveries previously made. This we daily see in the most learned nations, and to give instances, in what have been deemed recent and great improvements, I will mention the use of wine and cordials, and the admission of air, in low fevers, and the exhibition of opium; all of which are better detailed and recommended by Aretaeus, who wrote about 2000 years ago, than by any modern physician. The great discoveries of mercury, antimony, arsenic, &c. in medicine, were perhaps as well known centuries ago, as at this time, as would appear from that eccentric but wonderful man Paracelsus.[19]

Although there is a plenitude of information, as we have seen, on the career and accomplishment of this very successful physician of the eighteenth century, it is difficult to determine, from this distance, precisely what make of man he was. In almost all that his contemporaries and biographers have written of him, there is much praise and then, lest posterity should think him too perfect, a very little suggestion of blame. Some, like Cuming, thought him extravagant and gullible in his charities, others thought him vain of his own generosity. A verse in *The Wonderful Magazine* (1793) ran thus:

> "In generous deeds I gave my self,
> And though the world forgets 'em,
> I never shall forget myself—
> What's due to Coakley Lettsom." [20]

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[19] *Catalogue of the Medical Library of the Pennsylvania Hospital*, Philadelphia, 1829, pp. vii-viii.

[20] Quoted from *The Wonderful Magazine and Marvellous Chronicle* (1793, I, 346) by R. H. Fox, *Dr. John Fothergill and His Friends*, London, 1919, p. 107. This is the second stanza, the first being a variant of the widely quoted quatrain:

> When patients used to come to I,
> 'Twas "I physics and I sweats 'em,"
> When after that they chose to die,
> It does not grieve—I. Lettsom.

Some, probably motivated by envy, found him too much the " go-getter " to be quite the perfect gentleman and the dignified physician—he was satirized as " Dr. Wriggle " in the *Westminster Magazine* in September, 1782. He was blamed for too great a devotion to the opposite sex; even his biographer Pettigrew admits this charge, while protesting the utter innocence of the devotion. Numerous passages in Lettsom's letters give color to the charge. He describes in such glowing terms the graciousness of an heiress whom he had known in the West Indies; he was so deeply affected on receiving the blushing thanks of a young lady whom he had treated in sickness; he praises with such fervor the charms of the magnificent Mrs. Siddons.[21] Also consider, for example, this passage on a negro girl whom he had bought and set free in his youth:

> This little trifle of sweetmeats is the present of Teresa, a beautiful mulatto of mine. She has long hair; is a brunette, but has such a pleasing and fine eye, and such symmetry of shape, that many West Indians would have placed her at the head of a black seraglio. I, however, never had a seraglio; and Teresa, though probably proud to have shared the favours of her master, never influenced his passions.[22]

There is also the question, not so much of Lettsom's mercenary motives in marriage—in a time when so many marriages were made for convenience—but of his treatment of his wife thereafter. She lived at Grove Hill, less than ten miles away, but her husband appeared there only on weekends, not every week at that, and then spent much of his time entertaining his friends. After fourteen years of marriage he wrote that he continued to love his wife dearly because he saw her so seldom.[23] We can never know Mrs. Lettsom's feelings, but Betty Fothergill has left her impressions of Lettsom plainly on record, and it is clear that she did not think him capable of any sustained affection:

> The doctor though a man of letters, can trifle agreeably with females. He possesses the Creolian instability; and by turns feels a short-lived attachment to many; but, I think, is incapable of a steady delicate affection. Interest or caprice will, I am afraid, direct his choice.. " Unstable as water, thou shalt never excel " is a text I often repeat to the doctor.[24]

And at another time she wrote:

> He is a strange mortal. I am sure it would be impossible to investigate the folds of his heart. It is like a lump of wax that takes every impression, and retains none.[25]

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[21] Pettigrew, *op. cit.*, II, 41: I, Correspondence, 95-96, 72.
[22] *Ibid.*, I, Correspondence, 65.
[23] *Ibid.*, I, Correspondence, 39.
[24] Abraham, *op. cit.*, p. 87.
[25] *Ibid.*, p. 89.

Aside from these indications of extravagance and of emotional instability, all that we know of Lettsom's personality and character is to his credit. To his children he was a kind and affectionate father. He was a sprightly conversationalist, an enjoyable companion, a faithful friend. Physicians, lawyers, clergymen of all denominations, and authors were among his intimates and enjoyed his hospitality at Grove Hill. Boswell wrote an Horatian ode on the delights of the place, which pays due tribute to its master. Thomas Maurice and John Scott also made verses on Grove Hill, and John Nichols wrote of Lettsom with warm admiration as "an Isralite without guile," one of those who gladden as well as lengthen life.[26] The bookseller Charles Dilly and Dr. Anthony Fothergill both left generous bequests to Lettsom in their wills in token of devoted friendship.

Although he always wore a Quaker's dress—and was proud that his king had consented to receive him thus—Lettsom was not an orthodox Quaker; he took, in fact, a liberal view of all sects and religions. He was a Whig in politics, yet a conservative Whig, and all his efforts for social reform were such as would remedy existing evils without endangering the social order. In all his acts and opinions he was very much a man of his time, almost self-consciously so. As if distrusting his own volatile nature, he early set himself in a path that would lead to success and high reputation, and he followed that path carefully. The prodigality native to him was diverted into philanthropy; if radical or original thoughts ever troubled him, he waved them aside like tempters—certainly they never caused him to deviate from his course, either in his profession, in politics, or in social thought. His chosen path brought him to success indeed, but the path to success stops somewhere short of glory.

DISCUSSION

BURTON CHANCE, Philadelphia: It is gratifying to have been given so intimate an account of the life and works of one who did so much as Lettsom did toward the establishment of medicine on a scientific basis in company with Fothergill, and in aiding the Pennsylvania Hospital to form a Library; also, in receiving young Americans who went to the British Isles for their education.

As a native of this City, I am fully appreciative of Lettsom's thoughtful helpfulness to many of those whose services were well known to my antecedents. My father-in-law, who lived well along in the nineties, used to take delight in repeating humorous quatrains ironically describing Lettsom, which he had learned from his elders.

[26] *Gentleman's Magazine*, LXV (August, 1795), 685-686; Nichols, *op. cit.*, II, 657, 664-665 n.

JOHN MORGAN

WHITFIELD J. BELL, JR.

All the histories of American medicine record the name of John Morgan, but most of them are uncertain of the quality of his achievement and few of them say anything at all of his personality. Morgan appears in the books more nearly as a milestone than a real person; in our own day only Mr. Flexner and Mr. Gibson have gone beyond the oft-repeated facts, traditions, and opinions found in Rush's eulogy and the works of Norris on early Philadelphia medicine and of Carson on the medical department of the University of Pennsylvania. Yet each generation, on finding Morgan's name, has announced that the man deserves serious study. A fine review of Morgan's work published in 1827, for example, pronounced him "the unquestionable founder of American Medicine" and lamented that in the 40 years since his death his name had "gone out of remembrance so completely, that of the many hundreds who partake of the benefits of his school, very few have ever heard his name." More than half a century later the *University of Pennsylvania Medical Bulletin* made its debut with an editorial praising Morgan's plan of medical education as having "a very modern tone" and regretting that justice had scarcely been done his memory.[1]

One reason that Morgan has been so generally neglected, even by those who most cogently assert his significance, is that he is a bad subject for biography. In the first place, the materials for a study of the man are widely scattered and, apparently, not voluminous. There is no great corpus of Morgan manuscripts as there is of Benjamin Rush papers. The books and papers which Morgan collected and preserved before the Revolution were destroyed during the war; the papers of his later years Morgan may have destroyed himself when, at the end of his life, ailing and alone, he put his affairs in order and prepared to retire to New Jersey. In any case, relatively few Morgan papers have survived.

[1] James T. Flexner, *Doctors on horseback: pioneers of American medicine* (New York, 1937) 3-53; James E. Gibson, *Dr. Bodo Otto and the medical background of the American revolution* (Springfield, Ill., 1937); Benjamin Rush, "An Account of the late dr. John Morgan . . . ," *American Museum*, VI (1789) 353-355; "Retrospective review [of Professor Morgan]," *North American Medical and Surgical Journal*, IV (1827) 363, 381; "John Morgan," *University of Pennsylvania Medical Bulletin*, I (1888-1889) 51-52. Dr. William S. Middleton is the author of a good brief account of Morgan in *Annals of Medical History*, IX (1927) 13-26, and there is a sketch of Morgan in the *Dictionary of American Biography*.

More than this, assuming sufficient materials for a biographical study, Morgan is not an attractive subject. As Flexner pointed out, Morgan was personally formal, stiff, and oversensitive. He seems to have had no sense of humor, could not laugh at himself, and never relaxed from the manner which he thought properly became a professor in the College of Philadelphia and a Fellow of the Royal Society of London. He was so utterly without humor, in fact, that not a single anecdote about him appears to have survived; even his letters are so correct that a biographer cannot raise a smile by that cheap, time-tested device of quoting awkward grammar and bad spelling. There was so little warmth about him that, contrasting his own childless marriage with the family life of several friends, he could weigh "the Comfort of having Children" against "the Care & concern they bring" and reckon himself "at least equally happy" with them.[2] Not even his bitter experience in the Revolutionary War, when he was removed as Director-General of the Continental Hospital, quite evokes sympathy, especially when one reflects that his vindication was followed at once by countercharges against his successor.

Finally, Morgan lived a life of anticlimax. His most striking achievements came at the beginning. He opened his work at Philadelphia flushed with honors; he died 25 years later friendless and all but forgotten. He proposed a plan of medical education of sound, high standards; yet lived to see those standards whittled away by his colleagues. He was the founder of the first medical school in the country, yet never seems to have been its head dominating the situation. He was the first professor of medicine in the colonies, teaching ten years, but after his war service never held another class. He announced that medicine should be separated from surgery and pharmacy, but at the end of his life was selling drugs like his fellows of the medical faculty. He began many projects bravely; he finished few things well. Morgan's ideas have received the notice they deserve, but the facts of his life are enough to make a biographer despair of his art.

This is not to say that Morgan was a failure. On the contrary, during the brief years of his medical studies and travels abroad and the first years of his teaching and practice in this country, he was an innovator, a man fertile in ideas, the author of some basic principles of medical education and medical practice in America. Educated and energetic, he was the center of a group of grateful and admiring friends on both sides of the

[2] Morgan to Esther DeBerdt, Philadelphia, August 27, 1768. Joseph Reed Manuscripts, I, 77 (New York Historical Society).

ocean. John Bard, for example, urged his son, then studying medicine, not to go to London but to stay in Edinburgh " for a further reason, as it gives you an opportunity of cultivating the acquaintance of Mr. Morgan . . ."; and William Hewson said he was encouraged by the example of Morgan's industry to begin lecturing in London.[3] The beau-ideal of physician, philosopher, and citizen, after whom half a generation of young American medical students patterned themselves, he was in short perhaps America's finest exemplification, before the Revolution, of the liberally educated eighteenth-century physician.

I.

There was indeed something impressive about this young man of 30 who returned to his native city in 1765 laden with such academic honors as none of his fellows had ever won—Fellow of the Royal Society of London, licentiate of the Royal Colleges of Physicians of London and of Edinburgh, member of the Accademia degli Arcadi at Rome, *correspondant* of the Royal Academy of Surgery at Paris. Equally impressive was his daring to challenge the American profession and call for a new organization of medical practice in this country. A short story lies behind at least one of these honors and another surrounds the challenge.

After completing his formal studies at Edinburgh in the spring of 1763, Morgan went to the Continent and came in the fall of the year to Paris. Here he became a student of anatomy under M. Jean-Joseph Sue, chief surgeon of La Charité, who was at that time preparing the second edition of his *Anthropotomie*, a work on the art of injecting and preserving the parts of the human body. M. Sue taught Morgan his knowledge of preparations in wax; Morgan, in his turn, was able to show Sue how to prepare tissues by the method of injection and corrosion which he had learned from the Hunters in London.[4] The older man took a liking to the young American, introduced him to his family and professional colleagues, and became his sponsor before the Royal Academy of Surgery.

On January 26, 1764, Sue introduced Morgan to the Academy, where he had arranged that Morgan should present a copy of his Edinburgh

[3] John Bard to Samuel Bard, New York, April 9, 1762, in John McVickar, *A Domestic narrative of the life of Samuel Bard, M. D., LL. D.* . . . (New York, 1822) 39; William Hewson to Morgan, London, December 14, 1762, in Joseph Carson, History of the medical department of the University of Pennsylvania (Ms. Scrapbook, College of Physicians of Philadelphia) I, 109.

[4] Morgan, "The Art of making anatomical preparations by corrosion," American Philosophical Society *Transactions*, II (1786) 366-383.

thesis on the formation of pus. The Academy did Morgan the honor of beginning to read it in his presence. From this point for the next eight months one can follow Morgan's relations with the Academy. One thing above all Morgan wanted from it—election to the roll of foreign members. To the winning of this honor, that he might return to Philadelphia with such an accolade from the French profession, he now bent his energies. Morgan's letters and the minutes of the Academy tell the story of an ambitious young man who saw that a foreign academic title would increase the reputation he needed to introduce medical education and practice on the regular plan into the American colonies.[5]

The next month Morgan made a formal present to the Academy's library of his thesis, with a French translation, " in the mistaken hope," the minutes record almost drily, " that by virtue of this work, the Academy would make him a foreign associate member and would print his dissertation in the next number of their memoirs." At the same meeting Morgan demonstrated the anatomical preparation of a vein by corrosion, following Hunter's method, and read a paper on the subject. Of this demonstration Morgan afterwards said that the method was at this time unknown in France, save to M. Morand, secretary of the Academy, who had been to England and was acquainted with the Hunters. Morgan's paper was given to Sue to examine and report on.

This report Sue presented at the March meeting of the Academy. His judgment was favorable. At the same time Sue read a letter from Morgan in which the " Scotch physician," as he was sometimes called in the minutes, informed the Academy he wished to publish his paper with a dedicatory letter to the Academy itself; and he asked to be elected a foreign member. After some deliberation on these points, the Academy directed their secretary, M. Morand, to inform Morgan that they would accept the dedication on condition that the letter were approved by the Academy before the article was actually printed. Nothing was said about Morgan's election to the society.

Meanwhile Morgan had left Paris for southern France and Italy, where he was now making the grand tour. His travels were punctuated by sometimes urgent, sometimes pleading letters to Sue and the officers of the

[5] These paragraphs are based largely on the manuscript Minutes des procès-verbaux de l'Académie royale de chirurgie and on the Procès-verbaux des Séances de l'Académie royale de chirurgie, preserved in the library of the Académie de Médecine in Paris. I wish here to record my deep indebtedness to Dr. Maurice Genty, who found these materials for me, had some of them microfilmed, and copied others by hand by candle-light during the disturbances in France last winter.

Academy about his election. In April he was anxious; in May he was writing Sue in a fever of uncertainty.[6] The arrival of Morand's letter accepting the paper on corrosion on condition that the Academy approve the dedication, relieved Morgan with respect to his first query, but said nothing to reassure him on the subject of his election. Morgan sent off the dedication at once, begging the Academy's indulgence for writing it in English, explaining that, as he was without assistance in French, he thought it more respectful to write properly in English than incorrectly in French. As for his election, he confessed it was " an honour which I have entertained some hopes of and which my ambition has eagerly aspired after "; but assured the Academy he would submit to their decision.[7]

Although his dedicatory letter, after a few corrections, was acceptable to the Academy, Morgan's paper on corrosion was never published. " In regard to his request of election," the minutes continue, " it was believed the title of *correspondant* was sufficient for what he had presented to the Academy. The director proposed his name to the meeting, and it was unanimously approved." Thus Morgan, though he had been acknowledged by the French society, had not been admitted, as he had wished, to the select company of foreign associate members which included von Haller, van Swieten, Sharp, and Camper. The diploma conferring the title and rights of *correspondant* upon him was signed on July 5.[8]

In September, having been informed of his election, Morgan returned from Italy to France; and on October 4 took his place in the Academy. At that time, instead of the customary address, he presented a formal letter of thanks. Apparently he and M. Sue, with whom the letter was concerted, still hoped that he might be accepted as a foreign associate member. Astounding as this is, it is a more plausible explanation than gross ignorance of the language why, in this letter, Morgan consistently used the words *associé* and *académicien* instead of *correspondant*. The Academy, however, was not thus to be trapped into accepting Morgan on his own terms. The secretary was instructed carefully to amend Morgan's letter in each objectionable phrase, substituting for the title of academician, which he had assumed, " that of *correspondant*, which is properly his." Thus where Morgan expressed his gratitude for the honor done him " de m'associer dans votre illustre Académie," the secretary changed

[6] Drafts of these letters to Sue are in Carson, *op. cit.*, I, 75, 85.

[7] Morgan to M. Morand, Rome, May 19, 1764 (Ms., Library of the Académie de Médecine, Paris).

[8] It is preserved in Carson, *op. cit.*, I, 101.

the words to read: " de m'admettre au nombre des correspondans de votre illustre Académie." [9]

This is, of course, a small matter. Perhaps it seemed a small matter to Morgan, too, when he was elected a Fellow of the Royal Society of London a few months later. The Paris incident tells little of Morgan the anatomist; it reveals a great deal, however, of the ambitious, persistent, not at all humble character of Morgan the man.

John Morgan returned to his native land in the late winter of 1765. In America medicine, surgery, and pharmacy were indiscriminately practiced by a single person. Every doctor kept his shop and the cost of medical care was paid, pretty largely, by the sale of medicines. At Edinburgh and London, however, Morgan was impressed with the advantages in the separation of these three occupations and he resolved that on his return he would introduce into America not only medical education but what was called the regular mode of practice. He thought it more honest and more economical for the physician to charge for his attendance than to raise the price of medicines to the patient. Furthermore, as he conceived his program of medical lectures at the College, Morgan saw that only by limiting his practice would he have time for the study and reflection necessary to his teaching. In addition, it is not unlikely that a man like Morgan, though a skilful surgeon, was influenced by a preference for the higher social position which in England physicians were accorded over the operators. He therefore resolved that on his return he would take no surgical cases and fill no prescriptions, but confine himself to medicine alone. Of this intention he informed his Philadelphia preceptor John Redman. Redman gave him wise counsel:

I cannot help having much doubt & fear about the difficulty of putting it [your plan] into practice. And if practicable, I fear it will be with so few as to reduce your usefullness within very narrow limits. Or if many should come to it, It would be so long, That your talents would be for a considerable time almost buried & as it were rusting for want of employment, Not to say that your ability in Surgery for which you have a natural genius would be lost. I also fear your proffits woud be so small as ill to repay you for your extrayordinary expense of time & money in qualifying yourself—and as ill supply you with what is indispensably necessary for y^{r}. Support & Comfort, especially if you have any more mouths than your own to supply, whose stomachs or backs will not be so easily satisfyed with the food of y^{e} imagination as your own might. But if you begin in y^{e} Common way—you will I am perswaded immediately enter upon a scene of action, which will be both honorable & usefull, Supply all your wants & those dependant on you, and youl be

[9] Morgan to the Académie royale de chirurgie de Paris, October 4, 1764 (Ms., Library of the Académie de Médecine, Paris).

every hour engaged in doing good to rich & poor. . . . Perhaps youl now say—The plan is wise & prudent and will prevent excessive hurry & fatigue (often unrewarded) and will give you more leisure for meditation & other important or pious exercises, and that you think it your [duty] to prosecute what appears to be right, and submit patiently to whatever consequences providence may order. . . . But youl excuse me when I say there is a medium of reason in all things good & great as well as small. . . ." [10]

Dr. Redman's warnings, however, did not dissuade Morgan. In his *Discourse upon the Institution of Medical Schools in America* Morgan, now elected professor of medicine in the College, called for the practice of medicine in the regular manner:

. . . we must regret that the very different employment of a Physician, Surgeon, and Apothecary, should be promiscuously followed by any one man, however great his abilities. They certainly require very different talents. The infant state of a place, is sometimes used as an argument, not in support, but as an apology for such measures.

* * *

If Physic, Surgery, and Pharmacy were in different hands, practitioners would then enjoy much more satisfaction in practice. They would commonly be less burdened with an over hurry of business, and have an opportunity of studying the cases of the sick at more leisure. Would not this tend to the more speedy relief of diseases and the perfection of medical sciences, as every Physician would have more time by study, observation, and experience united, to cultivate that knowledge which is the only foundation of practice? [11]

On these terms, despite some opposition in the public and some resentment among his professional colleagues, Morgan began his own practice in Philadelphia. His admiring young friend, Samuel Bard, regretted that he had to keep a shop in New York, "but I have not quite as much Courage as you, nor if I had, do I think such an innovation would be as easily submitted to here as in Philadelphia." [12] How long Morgan continued to confine himself to medicine alone does not appear. But by 1781 at the latest he had withdrawn somewhat from his advanced position. Although he appears not to have engaged in surgery, save for the two exceptions he had himself originally made—venesection and inoculation—he did sell drugs. A book of his medical accounts from 1781 to 1789, which has been preserved, reveals clearly that throughout this period

[10] Redman to [Morgan], Philadelphia, March 13, 1764. Gilbert collection of manuscript letters, III, 354 (College of Physicians of Philadelphia).

[11] Morgan, *Discourse* . . . (Facsimile reprint, Baltimore, 1937) 40, 41.

[12] Samuel Bard to Morgan, New York, January 21, 1767 (Ms., College of Physicians of Philadelphia).

Morgan's medical practice was inseparable from the sale of drugs. The high ideals with which he had begun the practice of medicine 15 years before had fallen before the actual conditions of American practice and his own need to make a living.[18]

II.

In addition to his professional work, especially before the war, Dr. Morgan participated in some of the civic activities of his city and time. His prize-winning Sargent essay on the reciprocal advantages of perpetual union between Britain and the American colonies, read at the public commencement of the College in 1766, received favorable notice both here and in England. He made a visit to the West Indies in 1772 to solicit funds for the College and he was the spokesman of a group of French and Indian War officers who sought bounty-lands for the services. For six years he was a vestryman of Christ Church and for ten a physician of the Pennsylvania Hospital, elected to the first vacancy on the staff that occurred after his return from Edinburgh. Morgan's most distinguished public service, of course, was as Director-General of the Continental Hospital from October 1775 to January 1777.

To these formal institutional activities Morgan added another concern of civic interest—the development of the domestic economy. Many times one finds Morgan eager to promote some new process or manufacture or to develop and improve agriculture. At Rotterdam in 1763, for example, he met Peter Hasenclever, who was projecting a large-scale iron industry in America, and gave Hasenclever a letter of introduction to Thomas Penn. Morgan was very much interested in the infant American silk industry; through the American Philosophical Society he presented information on the processing of silk from the cocoon. To the American Society at one meeting he exhibited " some very fine Hemp, soft as Flax; also a fine single Thread spun of the same capable of being made into Linen for shirts & good Sheeting: likewise a three Corded Thread of it fit to make Stockings of an excellent and durable Quality." From the Society on another occasion, with John and Isaac Bartram and some others, Morgan received seeds of Chinese vetches to grow. Morgan may have prepared the list of books on agriculture which a group of farmers at Port Penn asked of the American Society; at any rate it was he who forwarded it to them. In 1785 he was one of that company of capitalists, philosophers and men of affairs who were among the first members of

[18] Morgan, "Journal C." (a., Historical Society of Pennsylvania).

the Philadelphia Society for Promoting Agriculture, in which his brother George was so active.[14] To this interest in agriculture and the national economy must be attributed Morgan's most unexpected essay, "Whether it be most beneficial to the united states, to promote agriculture, or to encourage the mechanic arts and manufactures?"[15]

In the late summer of 1788 Dr. Morgan left Philadelphia for the South in search of health. On the return journey, in March 1789, he stopped at New Bern, N. C., where a gentlemen's literary society under the name of the Shandean Society regularly met. Morgan was invited to address this group, perhaps by General Richard Caswell, formerly a member of the Continental Congress, twice governor of North Carolina, and a prominent member of the Shandeans, who may have been his host at New Bern. The question of a national economic policy was one often under discussion in the years succeeding the Revolution. By some voices America was called upon to retain the republican simplicity, innocence, and strength of an agricultural life; by others, to develop manufactures and so become economically, as it was already politically, independent of Europe. In general, Dr. Morgan accepted the actual condition of American economic life as best and urged that it be continued. His basic idea was that where labor is scarce, it is dear; that where labor is dear, it is most profitably employed in agriculture. The American soil, Morgan declared, could support, by agricultural pursuits alone, 50 millions. "Abounding with materials from the produce of the earth, the present generation can command a supply of the articles they require, in greater plenty, and of better quality, than it would be possible to manufacture ourselves. The necessaries of life are comparatively few. These are easily procured from our lands." In other words, agriculture should be encouraged as a matter of national policy because it had two good effects: it would supply America with necessities cheaply and so make the means of living easier, promote early marriages, and increase the population; and it would provide the country "with the most effectual means of procuring, in the way of barter and commerce, all those things, which we

[14] Morgan to Thomas Penn, Rotterdam, August 16, 1763. (Personal Papers, Miscellaneous M, Library of Congress); American Society for Promoting Useful Knowledge, Minute Book, April 1, May 27, 1768 (Ms., American Philosophical Society Library); American Philosophical Society, Minutes, March 3, 1769 (Ms., American Philosophical Society Library); "The whole process of the silk-worm, from the egg to the cocon: communicated to Dr. John Morgan . . . ," American Philosophical Society *Transactions*, II (1786) 347-366; Philadelphia Society for Promoting Agriculture, Minutes of meetings, I, 1785-1810 (Ms., University of Pennsylvania School of Veterinary Medicine Library).

[15] *American Museum*, VI (1789) 71-74.

cannot expect or hope to obtain by our own labour." This was not to say there must be no manufacturing, Morgan added. On the contrary, such hands as could be spared from agriculture might be put to ship- and house-building, and to making clothing. The cotton grown in the southern states, he suggested, might be carded, spun, and woven by northern hands and machines—" Which would be a great saving to the inhabitants of America." He approved the project of an American viniculture and the making of American wines, " at least for our own use and consumption." What is interesting here is not the ideas that Morgan expressed—for they are neither profound nor original—but that he chose such a topic to discuss in the first place.

III.

The eighteenth-century physician often appeared his best as a philosopher. If he had had an academic education, he almost certainly belonged to one of the learned societies which were seed-beds of so much scientific inquiry of that age, and maintained a regular correspondence with learned men in other places. John Morgan was not only a member of several European academies; on December 19, 1766, he was admitted a member of the American Society for Promoting Useful Knowledge. He seems to have been the animating spirit of this body until it united two years later with the American Philosophical Society; and of the united society he was during several periods of his life an active, respected, and valuable member. For several months after his election to the American Society his attendance was irregular. Late in 1767, however, proposals were made by Charles Thomson to enlarge the Society. These proposals Morgan seems to have espoused enthusiastically; he never missed a meeting during the weeks they were under discussion. He was in the chair when union with the American Philosophical Society was proposed in January 1768; he was one of the committee which negotiated the unification; he was in the chair again when the union was finally effected at the end of 1768. Morgan can therefore properly be accounted one of the founders of the American Philosophical Society, Held at Philadelphia, for Promoting Useful Knowledge.

As a member Morgan was active in presenting questions for discussion and specimens for observation. For discussion at one meeting he proposed the query whether cold is " a positive Body or a Privation of Heat "; at another meeting he presented some samples of Labrador tea and some down from the pod of Indian hemp. Thanks to his European sojourn and the friends he had in other colonies, Morgan was able to propose many

names for corresponding membership; and generally he was asked to inform these persons of their election. They in their turn sent him their thanks and sometimes a paper as well. Thus at various times Morgan read to the Society letters from Dr. Hugh Mercer, his companion of French and Indian War days, on the medicinal uses of Indian hemp; from Dr. Archibald Gloster, of Antigua, on the use of opium in tetanus; and from Dr. William Wright, of Jamaica, on antiseptic medicine.

To an eighteenth-century philosopher one of the more dramatic and intriguing fields of study was American paleontology. Early in the century French explorers found along the Ohio remains of prehistoric beasts which had gathered at the salt springs there. The English traders and settlers in mid-century knew the Kentucky licks as places where vast quantities of "Elephants' bones" could be found a few feet under the surface of the earth. In 1765 George Croghan, the Indian agent, descending the river, visited the great lick in what is now Boone County, Ky., and carried away some bones, including a tusk more than six feet long. The following year, accompanied by Morgan's brother George and by Ensign Thomas Hutchins, Croghan visited Big Bone Lick again. This time he took away a large number of specimens, among them molars, tusks, a vertebra, and a lower jaw of mastadons. Some of these bones he sent to Lord Shelburne and to Benjamin Franklin in London, where they aroused much scientific curiosity and speculation and were the subject of two papers read to the Royal Society. On this or a subsequent trip George Morgan too collected some specimens and Hutchins made a sketch of the place. On their return to Philadelphia they presented these to Morgan.[16]

Dr. Morgan already had in his house a small collection of natural curiosities brought back from his European travels. The bones from the Ohio were added to this private cabinet. Here, as perhaps the most unusual and striking exhibits in the collection, they attracted the interest of the curious and the inquiring. John Adams records in his diary that when he was in Philadelphia for meetings of the first Continental Congress in 1774, he dined one evening with Dr. Morgan, who, after dinner, showed his guests "some curious paintings upon silk which he

[16] George G. Simpson, "The Beginnings of vertebrate paleontology in North America," American Philosophical Society *Proceedings*, LXXXVI (1942) 135 ff; George Croghan, "Journal," in Reuben G. Thwaites, ed., *Early western travels* (32v., Cleveland, 1904-1907) I, 135; Albert T. Volwiler, *George Croghan and the westward movement, 1741-1782* (Cleveland, 1926) 196n; William Cooper, "Paper on the Big-Bone Lick, Kentucky," reprinted from *American Journal of Geology*, 1830.

had brought from Italy, which are singular in this country, and some bones of an animal of enormous size found upon the banks of the river Ohio." Morgan himself, however, made no addition to this collection; he hardly even examined the bones carefully; and he never published anything on the subject. If, for example, he knew of the papers of Peter Collinson and William Hunter, which proved these remains were from a totally different species from the elephant, he must have rejected their conclusions, for in 1787 he agreed with a celebrated Dutch anatomist that "the Tusks or Defenses belong to the Elephant and not to the Mammout or Animal incognitum."[17] But he showed his collection graciously to any visitor to the city who wished to see it.

One of these visitors was Dr. Frederick Michaelis, physician-general to the Hessian troops in America and later physician-in-chief to the Landgrave of Hesse-Cassel and a contributor to English medical journals. Dr. Michaelis had promised to bring his father some fossil bones from America. Accordingly, when the war was at an end and the armies were awaiting discharge, he is said to have asked General Washington's help in locating some American fossils on the farm of Robert Annan in Orange County, N. Y., where some had been found two years before. Washington provided the German philosopher with men, tools, and wagons for a small expedition; but, unfortunately, rain fell and the party was unsuccessful.[18] Subsequently Michaelis came to Philadelphia, where he heard of Morgan's collection and received permission to examine it. After his return to Germany, he conveyed to Morgan, through a lady of Philadelphia, an offer to purchase the collection. This offer Morgan firmly declined, for he still hoped that he might one day get around to studying the bones carefully for his own satisfaction "as Michael Angelo devoted much of his [time] to the famous Torsa, a fragment of Antique statuary, for his own Improvement & benefit of the Art." Even if he should never do this, Morgan "thought it would be a pity" to remove such "rare and surprizing Curiosities of nature" from the country

[17] John Adams, "Diary," October 14, 1774, *Works* (Charles F. Adams, ed., 10 v., Boston, 1850-1856) II, 397; Simpson. *loc. cit.*, 148; Morgan to Petrus Camper, Philadelphia, December 6, 1787 (Ms., University of Amsterdam Library).

[18] C. A. Hartnagel and Sherman C. Bishop, "The mastadons, mammoths and other Pleistocene mammals of New York state: being a descriptive record of all known occurrences," *New York State Museum Bulletin*, nos. 241-242 (1921) 42-43; Robert Annan, "Account of a skeleton of a large animal, found near Hudson's river," American Academy of Arts and Sciences, *Memoirs*, I (1793) 160-164; Charles Willson Peale, Autobiography (typescript copy, American Philosophical Society Library) 107.

where they were found.[19] He did, however, allow Michaelis to have some drawings made; and for this purpose Charles Willson Peale was engaged. Peale took the bones to his studio. While they remained there Peale's friend and brother-in-law Colonel Nathaniel Ramsay, seeing them, exclaimed in amazement that he would have travelled 20 miles to see such curiosities. Other visitors displayed a similar interest. Peale took the hint. Thus the bones which George Morgan gathered on the Ohio for his physician-brother, reposing temporarily in the studio of the artist of the Revolution, provided the inspiration of Peale's great American Museum.[20]

In Europe meanwhile, Dr. Michaelis (he was elected a member of the American Philosophical Society on January 22, 1785) was telling his friends of Morgan's collection and showing them the pictures which Peale had made for him. One of these friends was Petrus Camper, professor of medicine, surgery, and anatomy at Groningen since 1763, Fellow of the Royal Society of London, and a distinguished student of comparative anatomy who had already made some study of American prehistoric remains.[21] In the summer of 1787 Camper wrote Morgan offering to buy the entire collection for one hundred guineas.

In a reply Morgan reviewed his own interest in the bones, his reasons for having declined to sell them to Michaelis, and the motives of his recent change of mind. He had at last concluded, he explained, that he would never make that careful study of the bones which they deserved; his wife had died, he was himself in ill health and preparing to settle in New Jersey with his brother, and he was readying his establishment for the change. More than this, Camper's "well-founded reputation . . . of being one of the most skillful and eminent [anatomists] throughout all Europe, if not the very first in eagerness of useful reserches and knowledge of comparative Anatomy" convinced him that Camper was the fittest person for the task of studying the bones. Another inducement to sell, unmentioned in the letter, may conceivably have been Morgan's realization that his collection was no longer unique. Each year brought

[19] Morgan to Petrus Camper, Philadelphia, December 6, 1787 (Ms., University of Amsterdam Library).

[20] Peale, Autobiography (typescript copy, American Philosophical Society Library) 107-108; Charles C. Sellers, *Charles Willson Peale: Volume I. Early life (1741-1790)* (Philadelphia, 1947) 239.

[21] Adrien-Gilles Camper, "Notice de la vie et des écrits de Pierre Camper," published as a preface to *Oeuvres de Pierre Camper, qui ont pour objet l'histoire naturelle, la physiologie et l'anatomie comparée* (Paris, 1803) xxi, liv-lv.

new finds; only three years before, for example, Major Craig returned from Kentucky with some bones from Big Bone Lick, which he exhibited several months in the city and which were described to the American Philosophical Society and in an interesting illustrated article in the *Columbian Magazine*. Accordingly Morgan accepted Camper's offer of one hundred guineas paid in Philadelphia or £105 sterling in a bill of exchange payable to his account in London.[22]

The collection which was thus sold, Morgan assured Camper, was "exactly in quantity, number and quality the same (individually) which I shewed Dr Michaelis, without reservation of the least fragment or any part of them." A carpenter was summoned "to box up the bones carefully." Morgan made a list of the articles he was sending:

2 Tibiae. 2 broken Scapulae. Os fractum (nomine mihi incertum). Os femoris in two parts. Part of the Basis of the Cranium, upper Jaw & boney Palate, with 3 Molares remaining inserted, a fragment of the Inferior with one Tooth—a Box included in the smaller Case, with a Number of Molares, 8 pieces or parts of Defenses, (& 2 small fragments of Do). Atlas. American Cranium humanum & female Pelvis.

The cranium and pelvis Camper had especially requested Morgan to obtain, and this he had done through the kindness of a student in the Pennsylvania Hospital. With the specimens Morgan enclosed a copy of Hutchins' draft of the salt lick where the bones were found. "It is not elegantly done, but may serve, being exact enough to give a true Idea of that curious Spot of Earth."[23]

Because he was about to leave the city for his health's sake, Morgan left the actual details of shipping in the hands of his friend Samuel Vaughan, Jr., who had urged him to sell the collection to Camper.[24] The bones probably reached Holland that fall. Probably Camper saw them unpacked; he could hardly have studied the specimens at length, however, for in the late winter he became ill and on April 7, 1789, he died. The bones, however, formed a part of the Camper museum of natural history. In the catalogue of the collection which Camper's son Adrien-Gilles published in 1811 are listed the very items which Morgan's invoice named.

[22] Morgan to Camper, Philadelphia, December 6, 1787 (Ms., University of Amsterdam Library); "Description of bones, &c. found near the river Ohio," *Columbian Magazine*, I (1786) 103-107; Simpson, *loc. cit.*, 178.

[23] Morgan to Camper, Philadelphia, June 30, 1788 (Ms., University of Amsterdam Library).

[24] Morgan to Camper, Philadelphia, May 14, 1788 (Ms., University of Amsterdam Library).

Morgan's name does not appear, but there is a brief note: "All these mastadon remains were found in America on the banks of the Ohio." [25]

Like the collection of bones from the river Ohio which Morgan preserved and sold, air balloons, in which he was also interested, illustrate the Catholicity of the interests of this eighteenth-century physician and exemplify the ramifying history of international scientific relations in the late eighteenth century. As with paleontology, so with aerostatics, Morgan was one of the first Americans to interest himself in the subject; in aerostatics, as in paleontology, although he made no original contribution to the new science, Dr. Morgan did help publicize the subject.

The summer of 1783 was the birthday of ballooning. At Annonay near Lyons in France in June of that year the brothers Montgolfier, papermakers, constructed a balloon of muslin lined with glazed paper, 35 feet in diameter, which, filled with heated air rising from a stove placed below the aperture at the bottom of the bag, ascended successfully. Two months later, on August 27, from the Champs de Mars in Paris the physicist Jean-Alexandre-Césare Charles, who was experimenting under the auspices of the Académie des Sciences, succeeded in raising a balloon 12 feet in diameter filled with hydrogen gas. On September 19 Joseph Montgolfier, now come to Paris, demonstrated his balloon in an ascent from Versailles on which a sheep, a cock, and a duck were carried. Before the year was out Pilâtre de Rozier had ascended to a height of 330 feet in a captive balloon made by Montgolfier; and M. Charles had gone up in a hydrogen balloon equipped with valves to release the gas, with ballast and a barometer to measure his height.

By this time ballooning was a subject on all tongues. Among the more than 5,000 persons who witnessed the ascent at Paris on August 27 was the American minister to France, Dr. Franklin, who at once wrote an account of it to his friends Sir Joseph Banks and Dr. Richard Price in London, to Dr. Jan Ingenhousz in Vienna, and to Francis Hopkinson, Morgan's brother-in-law, in Philadelphia. To his sober, factual reports Franklin added speculations on the uses of balloons, their effect on warfare, and their use to him personally by providing a comfortable mode of travel for sufferers from the stone. The rage for ballooning spread across the Channel to England, across the Alps to Italy. An ingenious Italian Count Francesco Zambeccari at London in November raised a small balloon. Adventurers and philosophers alike made experiments; they

[25] *Description succincte du musée de Pierre Camper* (Amsterdam and The Hague, 1811) 2-3, 43-44.

constructed small balloons and large ones, making them of paper, of silk, and of muslin, raising them with heated air and with hydrogen; they sent them up free and captive, often empty, sometimes weighted. The most daring experimenters raised themselves.[26]

Before the winter of 1783-1784 had ended the Americans knew all about these developments. Dr. Lettsom wrote Dr. Rush about the experiments at Paris, conveying the astounding report that Montgolfier was projecting a balloon which would carry 12 persons on a three-months' voyage without alighting once for provisions. Dr. Franklin sent Rush a letter on the subject, enclosing a French pamphlet; and these Rush presented to a meeting of the American Philosophical Society on March 19. Less than two weeks later Francis Hopkinson reported to Thomas Jefferson: "A Gentleman in Town is making an Air Balloon of 6 feet Diameter; it is now almost completed—what the Success will be Time must show. . . ." A few weeks later he wrote: "We have been amusing ourselves with raising Air Balloons made of Paper—the first that mounted our Atmosphere was made by D[r] Foulk & sent up from the Garden of the Minister of Holland the Day before yesterday. Yesterday Forenoon, the same Balloon was raised from M[r] Morris's Garden, & last Evening another was exhibited at the Minister of France's to the great Amusement of the Spectators. They rose twice or perhaps three Times the Height of the Houses, & then gently descended without Damage. They were open at the Bottom, & of course the Gas soon wasted. I am contriving a better Method of filling them." John Foulke, who also lectured on anatomy in the city, was apparently so outstandingly interested in balloons that an English friend jestingly saluted him as the Monro and Montgolfier of America.[27]

All Foulke's balloons, however, were small; what some Philadelphians wanted to see was a balloon large enough to carry a living person. Accordingly late in May and in June proposals were drafted for the construction

[26] Edward E. Hale and Edward E. Hale, Jr., *Franklin in France* (2v., Boston, 1888) II, 269-289, 441-451; Carl Van Doren, *Benjamin Franklin* (New York, 1938) 700-702; Jeremiah Milbank, Jr., *The First century of flight in America* (Princeton, 1943) 4ff; Hatton Turnor, *Astra castra: experiments and adventures in the atmosphere* (London, 1865) 42-56, 326; I. Bernard Cohen, "The Development of aeronautics in America: a review of recent publications," *Isis*, XXXVII (1947) 58-64.

[27] John Coakley Lettsom to Benjamin Rush, London, February 28, 1784. Rush Mss., XXVIII, 4 (Library Company of Philadelphia, Ridgway Branch); George E. Hastings, *Life and Works of Francis Hopkinson* (Chicago, 1926) 337; John Sims to Thomas Parke, London, June 15, 1784. Gilbert collection of manuscript letters, IV, 81 (College of Physicians of Philadelphia); Horace M. Lippincott, "Dr. John Foulke, 1780, a pioneer in aeronautics," *General Magazine and Historical Chronicle*, XXXIV (1932) 3-15.

of such an aerostat by a public subscription comparable to the subscription by which the first Charles balloon was built in Paris. Dr. Morgan was appointed to solicit the countenance and support of the American Philosophical Society. The minute of June 11 records the matter as follows:

the attention of the public having been for some time past engaged upon the subject of Air Balloons as lately published by Messrs. Montgolfier at Paris—Some Experiments having lately been made to illustrate the principles so far as to shew the verity of the same—D[r] Morgan having been requested by some Gentlemen to apply to the Society for encouraging an Attempt to construct and raise an *Air Balloon* by subscription of such Magnitude as to be capable of raising great Weights, Men and other animals into the Region of the Atmosphere and returning with safety to the earth, [he] moves that the Society will give such encouragement to the Attempt as may tend to promote so laudable a Design and to Stimulate them to the execution of so useful an Undertaking.

The next week Morgan read the Society a paper on the construction and uses of air balloons. The motion, however, was withdrawn, for it was pointed out to him that the Society's rules prohibited its giving its opinion as a body on matters presented to it. The subscription, nonetheless, was immediately opened for a "large and elegant Air Balloon," 60 feet high, 50 feet in diameter, to be raised with heated air. As such a large balloon could not be raised cheaply except by heated air, a smaller balloon would be constructed and raised with "true inflammable air from iron filings and vitriolic acid." The 85 persons motivated simply by "a love of science and the honor of their country," as they explained, who consented to receive subscriptions, reads like a *Who's Who* of the city. Most of the clergy, many of the doctors, some of the lawyers, all the professors of the University, and most of the printers were among the 85. Many of the merchants were in this number, too; and one of them, John Swanwick, was treasurer of the group. Dr. Morgan was one of those assigned to solicit funds on Fourth Street.[28]

The Fourth of July was to have been celebrated in Philadelphia with a balloon ascension. Peter Carnes, a Maryland lawyer, who had constructed a balloon, was scheduled to appear on that day. Not until ten days later, after a successful ascension by a 13-year-old boy in Maryland, did he reach the city with his aerostat; and on the evening of July 17 he raised the balloon from the New Work-house Yard. Unfortunately, when the balloon had risen 10 or 12 feet, it struck a wall and Carnes was dumped out. Now measurably lightened, the balloon soared rapidly into the sky;

[28] "To the Citizens of Philadelphia," *Freeman's Journal*, July 7, 1784.

its appearance over the roof-tops were greeted by a great shout from the crowd, which, forsaking a public execution at Center Square at the same hour, had gathered at the Potters Field. Shortly afterwards the balloon caught fire from the stove and in a few minutes was completely consumed. The crowd dispersed under the impression they had witnessed an awful catastrophe.[29]

The editor of the *Freeman's Journal*, reporting Carnes' unsuccessful ascent, attempted to counteract the bad effect of the accident on public opinion: "This enterprising philosopher deserves the smiles of his countrymen,—and more especially as this beautiful machine was made at his own private expence—nor is the burning of a balloon any more argument against the using them than the burning of houses is against their use. . . . What garrison can remain unconsumed? What region unexplored, &c. &c. To what amazing perfection these globes may be brought futurity alone can unfold; they are advancing rapidly in Europe, and I hope this country which has hitherto discovered so much genius will dare to meet European philosophers above the clouds and there chalk out new modes of happiness for their fellow mortals below." The sponsors of the subscription likewise felt they must overcome the prejudice excited by the accident. Unlike Carnes' balloon, they assured the public, theirs would be built of linen instead of unreinforced silk; the surface would be covered to stop the pores; it would be so big and strong that it could carry 3373 pounds against Carnes' 469, and could not fail; it would be built "on a scale befitting the metropolis of one of the first states in the union, for wealth, commerce, literature and importance. . . ." Such an instrument, they added, with an appeal to the pious, would bring to light "the before-hidden operations of Nature" and excite "a contemplation of the wisdom and beneficence of the great Creator of the world to men."[30]

The subscription, however, appears to have been unsuccessful; at least no such aerostat as the projectors had in mind seems ever to have been constructed in Philadelphia. The subject remained much on the popular mind, however. The Provost of the University, addressing the graduates in 1784, linked the name of Montgolfier with those of Joseph Black, Joseph Priestley, and William Herschel; and Philip Frenau wrote a poem which touched lightly on several aspects of the subject. But the

[29] *Pennsylvania Gazette*, July 21, 1784; J. Thomas Scharf and Thompson Westcott, *History of Philadelphia, 1609-1884* (3v., Philadelphia, 1884) I, 436-437.

[30] A. B. C., "Air Balloon. To the Citizens of Philadelphia," *Pennsylvania Gazette*, July 28, 1784; *Freeman's Journal*, July 21, 1784.

death of Pilâtre de Rozier in France in the summer of 1785 seemed to point to the futility of ballooning and man's presumption in seeking to master God's element.[31] Despite these checks, however, a few men continued their experiments. Dr. Morgan was one of these in Philadelphia. Regarding a surprise visit, Mrs. Charles Thomson, writing from New York in 1786, playfully suggested that her Philadelphia correspondent must have engaged "Doctor Morgan's Balloon" for his enterprise.[32]

These incidents from the life of John Morgan are, of course, significant for any full-scale biography of the man. They add background and detail to the too-familiar picture of him based on his *Discourse*, his *Vindication*, and Rush's eulogy. Quite as importantly, they reveal Morgan tied closely to the pattern of his time and place. By the ideas he contributed to his profession, by his interests as a citizen, by his activities as a natural philosopher, John Morgan belonged to the eighteenth-century Enlightenment. For it was not the great men only, but the men of second rank whose ambitions far outran their achievements, who served laboriously on committees, prepared articles for the papers, collected curiosities which they tried to explain, shared their knowledge and speculations with others like themselves—and did all this in the conviction that they thereby advanced learning and the happiness of mankind.

[31] *Freeman's Journal*, June 2, 1784; Philip Frenau, "The Progress of balloons," *Poems* (F. L. Pattee, ed., 3v., Princeton, 1902) II, 276-279; "The Lunar travellers," *Pennsylvania Packet*, March 20, 1786; "The Balloon," *Columbia Magazine*, I (1786) 148.

[32] Hannah Thomson to John Mifflin, New York, September 17, 1786. *Pennsylvania Magazine of History and Biography*, XIV (1890) 36.

THE FIELDING H. GARRISON LECTURE

ANTICONTAGIONISM BETWEEN 1821 AND 1867 *

ERWIN H. ACKERKNECHT

Mr. President, Members of the American Association of the History of Medicine and Guests:

I fully appreciate the great honor that you have bestowed upon me in entrusting to me the Fielding H. Garrison Lecture of 1948. I gratefully accept this honor as a timely compliment and birthday present to the institution which I have the honor to represent, the University of Wisconsin, which will be one hundred years old this year and which has established a fine record indeed in fostering the history of science and medicine.

It gives me great satisfaction to see my name associated in this way with the name of the greatest medical historian our country has produced so far. Like every worker in the field of medical history, I am intellectually deeply indebted to the man we honor today. Roaming for years over the place where he spent the last years of his fruitful life, using his old reprints and books, running occasionally into one of his famous letters, and meditating the sad and brave melody of his beautiful prose, I have become emotionally deeply attached to Fielding H. Garrison as a person. And I dare to hope that the kind of shy shadow of the man who among his many interests also cultivated one in unorthodox epidemiological theories [1] will indulgently accept as an offering this short contribution to the history of anticontagionism.

It seems a happy coincidence that I am to deliver this lecture in this old medical metropolis which, as you will see, was actually the birthplace of the movement I am to describe.

Nothing might perhaps orient us quicker in our subject matter than perusal of what Hippolyte Marie Bernheim (1840-1919) (who was a contagionist himself and an authority on epidemic diseases before he

* 1821 is the date of the famous Barcelona yellow fever outbreak and 1867 of the last great European cholera epidemic. In preparation of this paper the Library of the College of Physicians in Philadelphia and Dr. W. B. McDaniel II have been most helpful through liberal book loans.

[1] Garrison, F. H., A Neglected Medical Scholar, *Bull. N. Y. Ac. Med.* 1928, 4: 469-76. Garrison, F. H., The Newer Epidemiology, in Singer-Sigerist, *Essays presented to K. Sudhoff*, London-Zuerich, 1924.

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became famous as a psychotherapist) had to say in 1877 concerning Jacob Henle, the teacher of Robert Koch.[2] Henle lives in our minds and textbooks as the man who "produced the first clear statement of the idea of a contagium animatum," who fought a bold vanguard action. To Bernheim the situation appeared as follows:

"Les observateurs sérieux reconnurent l'inanité de ces conceptions fantastiques; vers le milieu de ce siècle, cette doctrine [contagium animatum] était généralement abandonnée, comme une élucubration de l'esprit, sans base scientifique. Parmi les sommités médicales, Henle était peut-être le dernier qui, ayant déjà défendu en 1840 avec une grande vigueur de logique la doctrine du *contagium verum*, la défendait encore résolûment en 1853 avec la même conviction. Dans ces dix dernières années enfin, la doctrine parasitaire a repris un crédit considérable dans l'opinion publique, grâce à de nouvelles recherches et à des données plus positives."

"The serious observers recognized the emptiness of these fantastic concepts. Towards the middle of the century the doctrine of the contagium animatum was generally abandoned as a product of the imagination, lacking scientific foundations. Among medical leaders Henle was perhaps the last who defended in 1853 with strong determination the doctrine of the contagium vivum which he had defended already in 1840 with great logical vigor. Yet the parasitary doctrine has during the last 10 years regained considerable credit in public opinion as the result of new research and more positive findings."

It becomes thus obvious that what to us appears a vanguard action, impressed Henle's contemporaries rather as a rearguard action, the last gallant defense of a dead hypothesis. That the theories of contagion and the contagium animatum appeared old and obsolete to many in the first half of the 19th century is easily seen from the following examples:

Trotter speaks contemptuously in 1804 of the "relicts of the old animalcular hypothesis of contagion."[3] "Alpha" states in the Lancet in 1832 that certainly not within the last fifty years have any diseases been added to the list of the contagious ones.[4] Ozanam writes in 1835: "Nous connaissons un grand nombre d'auteurs qui ont écrit sur l'animalisation des contages . . . nous ne perdrons pas de temps à confuter ces hypothèses absurdes."[5] Wunderlich speaks in 1843 of the "remnants of childish ideas."[6] J. K. Mitchell, one of the inventors of the fungus miasma,

[2] *Dict. Encycl. Sc. Med.* (A. Dechambre ed.) 1. Ser., vol. XX, p. 7, 1877.

[3] Scott, H. H., *A History of Tropical Medicine*, Baltimore, 1942, p. 29.

[4] *Lancet* 1831-32, II, p. 21; see also Holland, H., *Med. Notes and Reflections*, Phila. 1839, p. 342.

[5] Ozanam, J. A. F., *Histoire médicale des maladies epidémiques*, Paris, 1835, III, p. 6. On Ozanam see Galdston, I., in *Essays presented to A. Castiglioni* (Supp. Bull. H. Med. No. 3), Baltimore, 1944, pp. 89-102.

[6] *Arch. Phys. Heilk.* 2: 321, 1843.

regrets in 1848 that "Morgan and Holland reverted to the exploded animalcular theory of Kircher and Linnaeus," [7] "which has hitherto been so feebly sustained by proofs, as to have at no time received general favor from the profession, although supported by some eminent men in almost every period of medical history." [8] E. A. Parkes states in 1849: "During the last sixty years, however, the study of several diseases imperfectly known to the older physicians has added so many new facts to our knowledge of the several specific epidemic diseases, that the strict contagion theory has been insensibly undergoing alteration, until in the present day it tends to become merged in a higher generalization." [9] C. F. Riecke states in 1859 that the contagious doctrine has made no progress in centuries, and recent research has reversed the whole old authoritarian building of the contagion doctrine.[10] Even a modern author, Major Greenwood, feels that Henle's essay "is worth reading, but not better worth reading than a book published in 1546 and written by a Veronese physician, Hieronymus Fracastorius." [11] And Charles Singer, who has been a most indulgent and sympathetic historian of animate contagionism, states that, except for a small school at the beginning of the 18th century, no real progress was achieved between Fracastorius and Pasteur.[12]

As a matter of fact, contagion and the contagium animatum were rather old theories around 1800. The youthful appearance they enjoy in our mind today is exclusively due to the very thorough rejuvenation they underwent in the 1870's and 80's. Once we realize this oldness of both theories we can hardly be surprized in finding that their development was by no means unilinear, but a continuous series of ups and downs, of acceptance and refutation. The notion of contagion, almost unknown to classic antiquity, had become firmly entrenched in Western culture after the acceptance of the (contagionist) Jewish Old Testament as a holy book in Christianity. After the introduction of quarantines in most Christian countries in the 15th and following centuries the notion of

[7] Mitchell, J. K., *Five Essays*, Phila. 1859, p. 111.

[8] *Ibid.*, p. 4.

[9] *Brit. For. Med. Chir. Rev.* 4: 252, 1849.

[10] Riecke, C. F., *Die Reform der Lehre von der Contagion*, Quedlinburg, 1854, pp. XVII, 177. See also Virchow's diatribe against unscientific, antiquated contagionism (in his *Archiv*, 2: 263; 1849).

[11] Greenwood, *Epidemics and Crowd-Diseases*, N. Y., 1935, p. 58.

[12] Singer, Ch. and D., The Development of the Doctrine of Contagium vivum, 1500-1750., *17th Int. Med. Congress* (1913), Sect. XXIII, p. 188, London, 1914.

contagion had in addition the official backing of the state, the worldly authority.

The idea of the contagium animatum had been formulated first in the 16th century by Cardanus, Paracelsus, and above all, by Fracastorius (1546). It had been further developed by V. de Bonagens, Fallopius, Mattioli and many others. It had not fared too well under the hands of Montanus, Valeriola, Sanctorius, and particularly Facio. But it had victoriously returned in the 17th century with the microscopic " worms " of A. Hauptmann, Father Kircher (1659), Chr. Lange, etc. Around the turn of the 17th century it had reached perhaps its highest elaboration with Lancisi, Andry, Vallisnieri, and after the Marseilles plague of 1721 with Bradley, Goiffon, and Lebègue. The satirical *Système d'un médecin Anglois* (by M. A. C. D. Paris, 1726) had almost ruined it through ridicule. But though now undergoing progressive degeneration, according to Singer,[13] it had still inspired a Linné (1757), Plenciz, Lorry, etc., and in the 19th century Rasori, H. Holland, and Henle. With Ag. Bassi (1838), Davaine (1850), Villemin it started on a new experimental basis; but how was one to differentiate at that moment solid acquisitions from the uncritical productions of Donné or Hallier? The day belonged to Woehler and Liebig's cruel anticontagionist jokes (1839), fashioned after the Parisian " M. A. C. D." of 1726.[14]

It was, curiously enough, in the first half of the 19th century, that is shortly before their final and overwhelming victory, that the theories of contagion and the contagium vivum experienced the deepest depression and devaluation in their long and stormy career, and it was shortly before its disappearance that " anticontagionism " reached its highest peak of elaboration, acceptance, and scientific respectability. It might contribute to our understanding of this phenomenon when we realize that what happened to medicine in the first half of the 19th century and what looks now to us only like normal birth pains or vigorous growth, might just as well be regarded as a deep crisis.[15] René La Roche called it downright a revolution, an event which is known to produce new things in the midst of a maximum of confusion and disorder. It is by no means incidental that the medical revolution paralleled everywhere so many political revolu-

[13] Singer, *l. c.*, p. 205.

[14] Most of the above data are taken from Singer 1914, Singer, Ch. and D., The Scientific Position of Girolamo Fracastoro, *Ann. Med. Hist.* 1: 1 ff., 1917, and Loeffler, F., *Vorlesungen ueber die geschichtliche Entwicklung der Lehre von den Bakterien*, Leipzig, 1887.

[15] The crisis aspect of this period has been emphasized by Shryock, e. g. in his *Development of Modern Medicine* (Phila. 1936). See also Ackerknecht, E. H., Beitraege zur Geschichte der Medizinalreform von 1848, *Sudhoff's Archiv* 25 (1932), chs. III and IV.

tions, and that the " anticontagionist revolution " in France was preceded, just like her political sister, by an American anticontagionist revolution.

The men who brought about this last victory of anticontagionism worked with unprecedented energy. The fact that such outstanding leaders of modern " contagionism " and thoroughly unromantic characters as William H. Welch and C.-E. A. Winslow have found understanding words for anticontagionism, seems to justify closer occupation with this movement.

" The official opinion, as expressed by sanitary authorities at that time (1848) was definitely hostile to the germ theory of disease. I attach, however, no great importance to this circumstance, for it is not clear what practical use sanitarians would have made of this theory with the knowledge existing at that time. Hypotheses born before their time are often sterile. They must have some relation to the state of knowledge existing at the time, and history affords many instances of the useful purpose served for a time by inadequate and even erroneous theories. It is doubtful whether any more useful working hypothesis concerning the sources of epidemics would have been framed in 1848 than that which guided most of the sanitary activities at that period and for many subsequent years, erroneous as it was, and tenaciously as it was held after it had served its primary purpose. This doctrine, as is well known, was the so-called filth theory of the generation of epidemic diseases." [16]

" We cannot dismiss the resistance of the medical profession to the doctrine of contagion as merely an evidence of hidebound conservatism. There were sound reasons for this attitude. The layman perceived the broad truth of contagion as he watched the plague spread from country to country and from seaport to seaport; but the physician knowing the facts more intimately realized that no *existing* theory of contagion taken by itself could possibly explain those facts. Contagion, before the germ theory, was visualized as the direct passage of some chemical or physical influence from a sick person to a susceptible victim by contact or fomites or, for a relatively short distance, through the atmosphere. The physician knew that such a theory was clearly inadequate. Cases occurred without any possibility of such a direct influence. Cases failed to occur when such a direct influence was present. Epidemics broke out without the introduction into the locality of any recognizable cases from without; and within the city or country they raged in a particular section and failed completely to spread beyond the border of that area. Outbreaks began and outbreaks ceased without any causes that would be directly related to the presence or the absence of the sick. Until the theory of inanimate contagion was replaced by a theory of living germs, and until to that theory were added the concepts of long-distance transmission by water and food supplies and, above all, of human and animal carriers—the hypothesis of contagion simply would not work." [17]

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[16] Welch, W. H., *Public Health in Theory and Practice*, New Haven, Yale University Press, 1925, p. 27.

[17] Winslow, C.-E. A., *The Conquest of Epidemic Disease*, Princeton, Princeton University Press, 1943, p. 182.

The anticontagionists were motivated by the new critical scientific spirit of their time. (Griesinger calls it somewhat sourly "Zweifelsucht"[18]). Contagionism was so old that it seemed never to have been submitted to rational examination. So they did submit it. It is no accident that so many leading anticontagionists were outstanding scientists. To them this was a fight for science, against outdated authorities and medieval mysticism; for observation and research against systems and speculation. Chervin's battle cry was "non verbis, sed factis." J. A. Rouchoux stated that experience of the typhus and yellow fever epidemics of the Napoleonic wars had more than anything else undermined the belief in contagion,[19] and coldly declared in the Academy of Medicine in 1832 that the experience with cholera "va achever le discrédit des mesures sanitaires (quarantines)".[20]

Still, the vigor of our movement would remain largely unexplained, did we not realize the powerful social and political factors that animated this seemingly scientific discussion. Contagionism was not a mere theoretical or even medical problem. Contagionism had found its material expression in the quarantines and their bureaucracy, and the whole discussion was thus never a discussion on contagion alone, but *always on contagion and quarantines*. Quarantines meant, to the rapidly growing class of merchants and industrialists, a source of losses, a limitation to expansion, a weapon of bureaucratic control that it was no longer willing to tolerate, and this class was quite naturally with its press and deputies, its material, moral, and political resources behind those who showed that the scientific foundations of quarantine were naught, and who anyhow were usually sons of this class. Contagionism would, through its associations with the old bureaucratic powers, be suspect to all liberals, trying to reduce state interference to a minimum. Anticontagionists were thus not simply scientists, they were reformers, fighting for the freedom of the individual and commerce against the shackles of despotism and reaction. This second aspect of anticontagionism contributed probably no less than its scientific aspects to its gaining over the majority of those parts of the medical profession that were independent of the state.

That the anticontagionists were usually honest men and in deadly earnest is shown, among other things, by the numerous self-experiments to which they submitted themselves to prove their contentions. Between the plague auto-inoculation of Desgenettes in 1798 and Pettenkofer's

[18] Griesinger, W., *Infektionskrankheiten*, Erlangen, 1857, p. 120.
[19] *Dictionnaire de médecine*, Paris, 1834, Vol. VIII, p. 503.
[20] *Archives générales de médecine*, 28: 286, 1832.

swallowing of a cholera culture in 1892, (both men, by the way, were rather "contingent contagionists" than pure anticontagionists), a veritable epidemic of self-experimentation seems to have shaken the medical profession. Yellow fever self-experiments are reported e. g. from Pfirth v. Salun, Lavallée, Musgrave, Potter, Chervin,[21] Prost, Dorsey, O'Connor, Govin,[22] Ffirth, Cathrall,[23] Guyon,[24] and Puhlschneider. Famous are the plague self-experiments of Clot-Bey, the offers for plague self-experiment by Chervin, Lassis, Costa, Lapis, and Lasserre,[25] and the cholera self-experiments of Fay, Scipio Pinel, Wayrot,[26] and J. L. Guyon. The amazing thing is that almost all of these experiments failed to produce the disease. They therefore greatly increased the faith of and in the anticontagionists. We hear only of a Dr. White dying in a plague self-experiment, the suicide of a Paris student who had too well succeeded with a syphilis inoculation,[27] and the death of the contagionist E. Valli from yellow fever in Havana in 1816 (V. overdid a little; he had already survived a successful plague vaccination self-experiment in Istambul in 1803).[28]

In their positive theories the anticontagionists were anything but uniform and often blissfully unaware of the fact that their theories were, especially when they adhered to the classic Hippocratic epidemic constitution or "atmospheric influences," even older than contagionism. Many followed a more modern and localized "miasma" theory (poison arising from decaying animal or vegetable matter, "filth"). From the miasmatic or "filth" theory to a purely social concept was but a short step.

In our discussions there did exist, like in all such situations, besides the two extremist wings, a large center of "moderates" that tried to compromise, the so-called "contingent contagionists," counting in its ranks such highly respected men as Milroy, James Johnson, Parkes, Riecke,

[21] Thomassen, E. H., *Untersuchung ob das gelbe Fieber ansteckend sey.*, Bremen, 1832, p. 27.

[22] Chervin, N., *Examen des principes de l'administration en matière sanitaire*, Paris, 1827, p. 29.

[23] La Roche, R., *Yellow Fever Considered in its Historical, Pathological, Etiological and Therapeutical Relations*, Philadelphia, 1855, Vol. II, p. 527.

[24] *Ibid.*, p. 262.

[25] *Lancet*, 1834-35, I, p. 862; *Lancet*, IX, 1825-26, p. 134.

[26] Tardieu, A., *Treatise on Epidemic Cholera*, Boston, 1849, p. 239.

[27] *Lancet*, 1829-30, II, p. 291.

[28] Hirsch-Gurlt, *Biographisches Lexikon der hervorragenden Aerzte*, Wien-Leipzig, 1888, Vol. VI, p. 62.

etc. And it is precisely the attitude of this center which decided on the practical applications, and which best illustrates the general orientation of a given period. It is extremely typical for our period that the center, though admitting theoretically contagion in certain limits and as *one* possible factor of many, *practically*, that is in the condemnation and abolition of quarantines, the supreme test of one's convictions, followed the *anticontagionists*. The anticontagionists, though castigating the center cheerfully for its inconsistencies, were well aware of this fundamental closeness of both tendencies.[29] The change of the orientation of the center since the times of Richard Mead (1721), when on the basis of a similar theoretical compromise it headed towards *contagionism*, is very significant.

In spite of the name, none of the anticontagionists was an absolute anticontagionist, denying the existence of any contagious diseases. Even such radical anticontagionists as Ch. Maclean or J. A. Rochoux admit the existence of such contagious diseases as syphilis, gonorrhea, smallpox, measles, and the itch.[30] But the actual and imaginary clinical and epidemiological difference between these diseases and those "big three" against which the quarantines were mainly directed: *plague, yellow fever, and cholera*, confirmed them in their anticontagionism. Around these three diseases, which together with typhus constituted the main health problem of the period, did the discussion primarily evolve, and it is through a more detailed discussion of the attitude of the medical profession towards yellow fever, cholera, plague, and typhus that we intend to picture anticontagionism between 1821 and 1867. Epidemics of smallpox, influenza, meningitis dysentery, etc. ravaged Europe in the same period. But none of them found a similar scientific and emotional response, partly probably because none did kill quite as dramatically and extensively as the "big three," partly because none of these "minor evils" resulted in so hated an institution as the quarantine.

Limited in time and space, I am obliged to omit from my discussion more or less the American prologue of the anticontagionist revolution (Rush—Webster), and to treat in a very summary way its later representatives, the English sanitarians (Chadwick, Southwood Smith, John Simon, etc.) or Pettenkofer and his followers. I feel justified in this

[29] La Roche, *l. c.*, p. 569.

[30] Maclean, Ch., *Evils of Quarantine Laws and Non-Existence of Pestilential Contagion Deduced from the Phenomena of the Plague of the Levant, the Yellow Fever of Spain, and the Cholera Morbus of Asia*, London, 1824, p. 136. Rochoux (*Dictionnaire de médecine* vol. 8, 1834, p. 504) even adds rabies, scarlet fever, anthrax, hospital gangrene.

procedure as there exist for Rush-Webster [81] as well as Chadwick-Simon [82] very excellent and detailed recent discussions by Winslow and others. Because of the same limitations, I have also quoted only a few of the most significant contributions out of a practically inexhaustible contemporary literature on yellow fever, cholera, plague, and typhus.

* * *

Anticontagionism and Yellow Fever

It was of great consequence for the success and spreading of anticontagionism in the 19th century that yellow fever, a disease which through its mechanism of transmission is far less of a "contagious" disease than either cholera, or plague, or typhus, was the first subject of the great 19th-century discussions between contagionists and anticontagionists, and that in the yellow fever discussion the anticontagionists were represented by a man of unusual intelligence, perseverance, and poise: Nicolas Chervin. It is also typical that practically *all* "professional anticontagionists," that is those men who not only accepted anticontagionism, but made the fight against the theory of contagion and quarantines their life work, had had their first epidemiological experiences with yellow fever. The easy victory of anticontagionism in the yellow fever discussion set a fatal pattern for later discussions on cholera and plague.

It seems that modern anticontagionism in regard to yellow fever really started in the famous Philadelphia yellow fever epidemic of 1793. René La Roche gives to Jean Devèze (1753-1825),[83] one of the many French refugee physicians from San Domingo (La Roche himself was the son of such a San Domingo physician), the credit of having brought an idea that had been apparently long prevalent in the West Indian and other tropical yellow fever centers,[84] to a theater from which it was to conquer the world. You all remember how through his 1793 experiences Benjamin Rush was converted from contagionism to anticontagionism, how in 1799 the anticontagionist Philadelphia Academy of Medicine was founded. When Chervin 20 years later came to Philadelphia, he found

[81] Winslow, *l. c.*, p. 193 ff.; *Spector, B., Noah Webster's Letters on Yellow Fever*, (Suppl. Bull. H. Med. No. 9), Baltimore, 1947, and especially that extraordinary product of American medical scholarship: La Roche's book on yellow fever, Phila., 1855.

[82] Winslow, *l. c.*, 236 ff.; Newsholme, A., *Evolution of Preventive Medicine*, Baltimore, 1927, p. 121, ff.

[83] La Roche, *l. c.*, p. 239, Devèze regarded also plague, typhus, and dysentery as noncontagious.

[84] La Roche, *l. c.*, 247 ff. gives long lists of tropical anticontagionists.

but 4 or 5 contagionist physicians left.[35] The writings of the North American anticontagionists made a deep impression upon European doctors, which was reinforced through the fact that all the leading physicians of the ill-fated Napoleonic expedition to San Domingo (1802-3), that was wiped out by the yellow fever, returned as confirmed anticontagionists. (Trabue, F. V. Bally (1775-1866), A. François (1775-1840), L. Valentin (1758-1829), etc.) and an international authority like Alexander von Humboldt sided with the anticontagionists (1802).

Through the Napoleonic Wars the French and English became sensitive to the fact that in Spain they had a center of yellow fever right in their back yard. Outstanding French army doctors like P. Assalini (1750-1840) and F. P. Blin (1756-1834) found in 1805 and 1801 the Cadiz yellow fever epidemics, that killed 20 per cent of Cadiz' inhabitants, to be of a non-contagious character. Robert Jackson (1750-1827), the famous English army physician, came to the same conclusion in 1821.[36] In the yellow fever epidemic of Gibraltar of 1814 the majority of the local physicians voted anticontagionist in a kind of referendum.[37]

When in 1821 a very fatal epidemic of yellow fever broke out in Gibraltar, the (contagionist) French government and the Academy of Medicine, becoming more and more alarmed, despatched a study commission consisting of the Academy secretary Et. Pariset (1770-1847), Bally, and François [38] to Barcelona in order to clear up the fundamental problems of the disease in view of future protective legislation. The three musketeers of contagion returned with a very contagionist report, obtained a life pension of 3000 Frs. per year; and a very stringent quarantine law was passed through the chambers in 1822.

The anticontagionists too had flocked to Barcelona, to study the epidemic, and in 1822 a manifesto on the 1821 outbreak appeared,

[35] *Ibid.*, p. 237.

[36] La Roche, *l. c.*, 245. See also the anticontagionist verdict of A. N. Gendrin (1796-1890), the great French clinician and scientist, on the Malaga epidemic in 1824.

[37] Maclean, *l. c.*, p. 76.

[38] A fourth member of the commission, Mazet, died shortly after arrival in Barcelona. Pariset was a confirmed contagionist. Bally and François had rallied contagionism (in 1805, respectively 1821) a very rare occurrence. The contrary: conversions from contagionism to anticontagionism was the rule. See La Roche, *l. c.* p. 257 on the conversion of Rush and other Americans, Piguillem and other Spaniards, Thiebauld de Berneaud, Wm. Ferguson (1772-1846), E. B. Bancroft (both outstanding military surgeons), Chambolle, Lefort, Fournier de Pescay (b. 1771), etc. The conversions of Bally and François were materially so generously rewarded that they did not increase confidence in their character. A republication of their former opinions by E. Sulpicy (*Les contagionistes refutés par eux-mêmes.* Paris, 1827) proved rather embarrassing.

signed by such well-known anticontagionists as the Frenchmen, S. Lassis (1772-1835), J. A. Rochoux (1787-1852), the British Th. O'Halloran and Charles Maclean (ca. 1766-1825), the American John Leymerie, and 11 local physicians, among them 4 recent converts to anticontagionism, F. Piguillem, M. Duran, J. Lopez, and S. Campmany.[39] The manifesto showed that there was no positive proof that the disease was imported from Cuba; that it could satisfactorily be explained through the miasms of local filth, particularly sewers; that no infection through fomes had occurred during the epidemic; that it was strictly seasonal; that attendants to the sick showed below average morbidity; and that numerous cases were struck for the second time.

The manifesto helped Maclean defeat a quarantine law in the Cortes in 1822, but produced little reaction abroad. Especially in France everything seemed under control. At this moment *Nicolas Chervin* (1783-1843) returned from America, where since 1814, first practicing in Guadeloupe, then travelling all along the East coast of the continent from Guiana to Maine, he had studied yellow fever and collected a truly amazing and well-authenticated documentation in favor of anticontagionism. In North America, e. g. he had found 568 yellow fever anticontagionist physicians as compared to 28 contagionists.[40] Chervin immediately went to Spain to check Pariset's report, and the documentation he brought back did not leave much of the permanent secretary's hasty, hysterical pudding. In 1825-26 Chervin bombarded the Chamber with petitions to reopen the case of yellow fever quarantines on the basis of his documentation. The Chamber passed the problem to the Academy of Medicine. The Academy appointed a committee of 18 that examined the documentation for 11 months. In 1827 Coutanceau (1775-1831) submitted a report to the Academy, (primarily the work of Villermé, the greatest living French sanitarian, Réveillé-Parise, Emery and Lanbert) that in spite of its diplomatic terms, criticized by Chervin, adopted Chervin's point of view, completely demolished Pariset's report, and recommended stopping further enforcement of the 1822 quarantine law. The Coutanceau report was, after long discussions, where especially R. N. D. Desgenettes (1791-1858), the former head of Napoleon's Medical Corps, and J. B. Louyer-Villermé (1776-1837) championed Chervin's cause, and in spite of the violent resistence of Pariset, of heavy governmental pressure and maneuvers, adopted by a majority of the Academy in January, 1828, and

[39] Maclean, *l. c.*, p. 141. Maclean reprints the whole manifesto, p. 122 ff.
[40] Chervin, 1827, p. 15.

quarantine credits accordingly cut down by the Chamber. The Academy of Science took a similar stand.[41] Chervin received the Grand Prix de Médecine of the "Institut" for 1828.

It is almost impossible to exaggerate the importance of this step of the French Academy, the leading medical corporation in the leading medical country of the period. It set the pattern for the Western world. It set the pattern for the Academy's own attitude in later discussions on cholera and plague. Only deep conviction could bring the Academy to withstand official pressure and to expose its own permanent secretary. The Academy remained faithful to Chervin. Together with P. Louis and Trousseau it delegated him to Gibraltar to study there the yellow fever epidemic of 1828. In 1832, the cholera year, it elected him a member, not because of his political radicalism, as the *Lancet* had claimed, but in spite of it.[42] Chervin made a deep and lasting impression on the profession like no other contagionist. Even most of his adversaries spoke with respect of him. J. Raige-Delorme (b. c. 1795), editor of the Archives Générales from 1823 to 1854, remained full of an unchanging admiration for Chervin throughout the years.[43] The four friends Chervin mentioned in his own testament—Réveillé-Parise, Londe,[44] Rochoux, and Civiale—were all outstanding medical men. In 1863, 20 years after Chervin's death, the contagionist Charcot regarded Chervin's work on yellow fever still as final.[45]

Chervin's influence was not so much due to the arguments he used, which are similar to those of all anticontagionists, e. g. coincidence of outbreak and ship's arrival, not importation; non-transmission to nurslings of affected mothers or hospital attendants; the disease strikes only in certain localities, sick fugitives do not infect; fomes do not infect; the contagionists do not observe their own laws, etc. etc.[46] It was due to his great conscientiousness, precision, and honesty—he submitted material adverse to his theory with the same industry as favorable material—and his poise—he kept the lunatic fringe of anticontagionism at a safe distance; he limited himself to what he actually knew—and to his perseverance, even more than to his brilliant intelligence and enormous

[41] *Archives Générales de Médecine*, 2 s., 1 : 609, 1853.
[42] *Lancet*, 1832-33, I, p. 373.
[43] e. g. *Arch. Gén.* 16 : 310, 1828; 22 : 437, 1830.
[44] For Réveillé-Parise, Londe, Villermé, and many other anticontagionists as hygienists see Ackerknecht, E. H., Hygiene in France 1815-49, *Bull. Hist. Med.*, XXII, pp. 117-155, 1948.
[45] Charcot, J.-M, *Oeuvres complètes*, Vol. VIII, p. 144, 1889.
[46] Chervin, 1827 : 59.

knowledge, which made him tower above most contemporary contagionists and anticontagionists. His personal integrity and disinterestedness were above any doubt. Although representing the interests of a very wealthy class, he died a poor man. His published work consists only of pamphlets. His magnum opus on yellow fever remained unfinished. It is one of the tragic jokes of fate that Chervin's many talents and virtues were spent on a lost cause.

In the above-mentioned Gibraltar epidemic of 1828 the majority of the garrison's doctors and the majority of the official British inspecting commission, although presided by the violent contagionist Sir William Pym, gave a verdict against contagion.[47] The same conclusion was reached by the Inspector General of Army Hospitals, J. L. Gillkrest (d. 1845). This, by the way, was the last large yellow fever epidemic in Europe (except for the outbreaks in Lisbon in 1857 and Madrid in 1878) which made it all the easier for yellow fever anticontagionism to stay.

In 1850 D. Blair and the local physicians of Guiana, under approval of J. Davy, Inspector General of the British Army, declared yellow fever to be non-contagious.[48] The same conclusion was reached by the British Yellow Fever Commission in 1852,[49] and the General Board of Health in 1853. Riecke defended this opinion in 1854. In 1855 the Philadelphian R. La Roche's great anticontagionist classic on yellow fever came out. "As a work of profound erudition, at once complete and exhaustive, written in a scholarly style, and evincing the most patient and extraordinary research, the monograph on yellow fever, by Dr. La Roche, is without a rival in any language." [50] In 1859 G. Milroy (1828-1886), the famous English sanitarian, asked for removal of the useless yellow fever quarantines for the sick,[51] just as J. K. Mitchell had done in 1846.[52]

By 1868 opinion of the majority, under the influence of men like F. Mélier (1798-1866) and W. Griesinger (1817-1868), and of new observations, seems to have swung back to the concepts of contagiousness and

[47] Chervin, *Lettre sur la fièvre jaune qui a régné à Gibraltar en 1828*, Paris, 1830, p. 16. For a good analysis of the Gibraltar epidemic by the contagionist Peter Wilson, with emphasis on "filth," see *Lancet* 1829-30., I., p. 395 ff.

[48] *Brit. For. Med. Chir. Rev.* 6 : 428, 1850.

[49] Scott, *l. c.*, p. 352.

[50] Gross, S. D., *History of American Medical Literature*, Philadelphia, 1875, p. 25.

[51] Milroy, G., *Quarantine As It Is and As It Ought to Be*. London, 1859.

[52] Mitchell, J. K., *l. c.*, p. 115.

importation of yellow fever, except for the English, who according to Dutrolau, were prejudiced through their commercial interests.[53] In the United States the reaction seems in general to have set in even earlier, just as the wave of anticontagionism had started earlier.

Cholera and Anticontagionism

Yellow fever, fortunately, remained but a potential danger for Europe and discussion of its contagiousness more or less an academic problem. Cholera overran Europe and the world in four major pandemics during the 19th century, spreading terror like the medieval plague, killing millions (in England and Wales alone ca. 150,000), and constituting everywhere a tremendous medical, political, economic, and human problem.

Cholera had been a native of India for centuries, and the Anglo-Indian physicians became thus the first authorities on cholera for their Western colleagues, like the West Indian physicians had once been on yellow fever. These Anglo-Indians, especially those reporting on the 1817 epidemic, were confirmed anticontagionists. The whole medical body of Bengal and the majority of the Bombay physicians decided this way.[54] The Anglo-Indians were among the last to abandon anticontagionism in cholera.

The 1817 Indian cholera had advanced to the Near East in 1821 and knocked so loudly at the door of Europe that farseeing observers, contagionists (Moreau de Jonnès, born 1778) and anticontagionists (Maclean) alike foresaw that the next cholera wave, starting in India in 1826, would probably enter Europe. Governments, especially those of France and Russia, took early precautions in the form of rigid military cordons and quarantines. To no avail; in 1831 cholera overran Russia, and in 1831-32 the rest of Europe. Leon Colin[55] has left an excellent summary of the effect of the first great victory of cholera on epidemiological thought:

> Cette marche rapide, à travers l'Europé de la première épidémie de choléra au moment même où l'on avait le plus grand espoir dans l'influence prophylactique des cordons sanitaires, la préservation de tant de pays qui, au contraire, étaient demeurés en libre communication avec les régions atteintes, diminuèrent aussi de beaucoup la confiance publique dans les mesures quarantainaires. On sait qu'alors

[53] Dutrolau, A. F., *Traité des maladies des Européens dans les pays chauds*, Paris, 1868.

[54] Chervin, 1827, p. 26. Maclean, *l. c.*, p. 397. Maclean attributes this to his teachings and publications in India (Calcutta, 1796). See also Charles Searle, (Madras) *Cholera*, London, 1830. W. Twining (1780-1835) *Practical Account of Epidemic Cholera*, London, 1833, etc.

[55] *Dict. Encycl. Sc. Méd.* (Dechambre ed.) 3. ser. vol. I, p. 51, Paris, 1874.

on révoqua en doute d'une manière absolue la transmissibilité de cette maladie, de l'homme à l'homme, et qu'on en revint à la doctrine du génie épidémique; la contagion fut presque, d'une manière générale, traitée de croyance chimérique, le progrès semblait être du côté de ceux qui ne l'admettaient plus; leurs idées étaient considérées comme des idées de nature libérale par excellence, d'autant plus en rapport avec la dignité humaine que leur conséquence pratique était la suppression de toute entrave portant atteinte à la liberté de l'homme; l'esprit du temps était, en un mot, l'inverse de celui d'aujourd'hui; et, au lieu d'être voué au culte de la spécificité étiologique, on traitait volontiers d'esprits rétrogrades ceux qui admettaient encore la contagion du choléra, du typhus, et de beaucoup d'autres maladies.

European doctors could not fail to be impressed by the fact that the majority of those Western physicians, who encountered cholera first, rendered a verdict of non-contagious (e. g. Astrachan,[56] Moscou [57]). The numerous commissions that the French and other European governments sent into the cholera regions claimed the same results and found quarantines useless: Gerardin and Gaymard, who with Jules Cloquet formed a Russian commission;[58] the Polish commission (Dalma, Sandras, Boudard, Dubled, Alibert, Ch. Londe).[59] The same holds good for the great sanitarians F. Foy (1793-1867) and R. H. J. Scoutetten (1799-1870) who were sent to Warsaw and Berlin.[60] Hamett's report on Dantzig was " lost " by the contagionist English Health Council.[61]

When cholera struck England in 1831 the authorities and the overwhelming majority of physicians were contagionist. Thomas Wakley stopped an anticontagionist series by " Alpha " in the *Lancet* and came out strongly for contagion.[62] The adoption of " contingent contagionism " by James Johnson (1777-1845), the international authority on tropical diseases and physician extraordinary of the king, and of a straight anticontagionism by the highly respected A. Bozzi Granville (1783-1871), who had so valiantly defended contagionism and quarantines in the plague discussions of the 1820's, marks the turning of the tide.[63]

In 1832 the editor of the *Edinburgh Medical and Surgical Journal* turned anticontagionist.[64] The books of J. Lizars (1793-1860) and T. Molison reinforced the anticontagionist trend, the Westminster Medical

[56] *Arch. Gén.* 28: 131, 1832.
[57] *Arch. Gén.* 27: 554; *Lancet*, 1831-32, I, p. 17.
[58] *Arch. Gén.* 30: 138.
[59] *Arch. Gén.* 28: 134, 1832; *Lancet*, 1831-32, I., p. 113.
[60] *Arch. Gén.* 28: 452, 1832, ib. p. 451.
[61] *Lancet*, 1832-33, I., p. 372.
[62] *Lancet*, 1831-32, I., p. 261.
[63] *Lancet*, 1831-32, II., p. 299, 301.
[64] *Lancet*, 1831-32, II., p. 23.

Society, probably the most active medical society in London at the time, voted anticontagionist (24:22).[65] G. Sigmond (b. 1790), himself a convert, *stated in May that probably the majority of physicians was now anticontagionist,*[66] *and even Wakley tuned down his contagionism considerably.*[67] J. G. Gillkrest came out in favor of the anticontagionists,[68] and H. Gaultier's book on the Manchester epidemic illustrated well the current anticontagionist approach.[69]

Perhaps the outstanding promoter of anticontagionism in France in the 1832 epidemic was the famous physiologist, pathologist, pharmacologist, and clinician, *François Magendie* (1783-1855). In December 1831, when France was still free of cholera, he went to Sunderland to study the disease. His conclusions, as presented in the Academy, were that the disease was not imported and contagious but due to incredible social conditions—humidity, lack of ventilation and light, "filth"—and that quarantines were therefore useless. He won an easy victory against Moreau de Jonnès.[70] In the following Paris epidemic he showed great courage and skill in fighting the disease. His opinions were but reinforced through this experience,[71] and the events of 1848. Magendie felt that four out of the five quarantine diseases—leprosy, typhus, yellow fever, and cholera—were certainly not contagious, the fifth, plague, was probably also non-contagious.[72] It is probably under his impulsion that the doctors of the Hôtel-Dieu (Petit, Recamier, Dupuytren, Husson, Magendie, Breschet, Honoré, Guéneau de Mussy, Samson, Caillard, Gendrin, Bailly) published an anticontagionist declaration.[73] An Academy of Medicine report and instruction of the same year, written by de Mussy, Biett, Husson, Chomel, Andral, Bouillaud, and Double, is clearly anticontagionist by implication.[74] J. B. Bouillaud (1796-1881) expanded his anticontagionist views in a lengthy treatise of the same year and defended

[65] *Ibid.*, 150.
[66] *Ibid.*, 147.
[67] *Ibid.*, p. 156, 178.
[68] *Lancet*, 1832-33, I., p. 113.
[69] Gaultier, H., *The Origin and Progress of the Malignant Cholera in Manchester.* London, 1833. G. regards the relation between the arrival of sick persons and a new outbreak as purely coincidental in view of the many exceptions (p. 14). He accuses effluvia of excrements as the source of the disease (p. 112).
[70] *Arch. Gén.* 28:430, 1832; see also the excellent recent biography of Magendie by J. M. D. Olmsted (N. Y. 1944).
[71] See his 1832 book on cholera.
[72] *Lancet*, 1843-35, I., p. 224, 273.
[73] Tardieu, *l. c.*, p. 244.
[74] *Arch. Gén.*, 29:122, 1832.

anticontagionism vigorously as a member of the Chamber in 1846.[75] To this long and brilliant list of French anticontagionist clinicians we have still to add the names of Broussais,[76] Piorry,[77] H. M. F. Desruelles (1791-1858),[78] of the hygienists F. Foy (1793-1867),[79] Ch. E. S. Gaultier de Claubry (1785-1855),[80] Ch. F. Tacheron (b. 1790), and of the naval medical officers J. J. Souty and F. Levicaire.

It is practically impossible to list all outstanding French physicians who became anticontagionists. A list of the contagionists is far more feasible. It consists more or less of the two great surgeons Velpeau and Delpech, and the two psychiatrists Foville and Parchappe. And, of course, Pariset and Moreau de Jonnès.

The trend towards anticontagionism in the 1831 epidemic was the same in Germany as elsewhere (see the writings of H. W. Buek, N. Weigersheim, Koelpin, etc.[81]). But due to the general low status of German medicine at the time it was of small importance.

The *pandemic of 1848-49* confirmed the anticontagionist beliefs of 1831-32 in practically all observers, and won even new adherents to the cause. The reports of the Anglo-Indian surgeons, collected by the anticontagionist Rogers, continued to emphasize anticontagionism.[82] Prof. E. A. Parkes (1819-76), who made for the General Board of Health a much admired analysis of the earliest cases of the London 1848 epidemic, had been formed in India, and it is therefore not surprising that his " modified contagionism " practically excluded the contagiosity of cholera as well as yellow fever and plague.[83] W. F. Chambers (1786-1853), physician of the Queen, and the respected J. A. Wilson (1795-1883) preached anticontagionism.[84]

The significant change in 1848 as compared to 1831 was that now for the first time in centuries a governmental agency was defending the tenets of anticontagionism: *the General Board of Health* (Ashley, Edwin Chadwick, and its medical member Dr. T. Southwood Smith (1788-1861). The 1849 *Report on Quarantines* of the Board is clearly opposed

[75] *Arch. Gén.* 4, ser. 11 : 370.
[76] *Lancet*, 1831-32, II. p. 148.
[77] *Arch. Gén.* 28 : 608, 1832.
[78] *Arch. Gén.* 27 : 140, 1831.
[79] *Arch. Gén.* 28 : 452, 1832.
[80] *Arch. Gén.* 2 s., 1 : 532, 1833.
[81] Haeser, H., *Lehrbuch d. Gesch. der Medizin.* Jena, 1882, Vol. III, p. 921 ff.
[82] Rogers, S., *Report on the Asiatic Cholera in the Madras Army from 1828 to 1844.*, London, 1848.
[83] *Brit. For. Med. Chir. Rev.*, 1849, vol. 4 : 251 ff.
[84] *Lancet*, 1849, I., p. 166; *Lancet*, 1848, II., p. 502.

to quarantine. Its 1848 Instructions [85] and its 1850 *Report on the Epidemic Cholera of 1848 and 1849* (based mainly on the surveys of Drs. J. Sutherland (1808-91), R. D. Grainger (1801-65), and J. Milroy), were openly and pronouncedly anticontagionist. Grainger made the same point in his Hunterian Oration of 1841. The Board of Health was not the least surprised by the increased morbidity and mortality of 1848-49 as compared to 1831-32. Far from attributing it to a relaxation of quarantines, it attributed it to the increase since 1831 of those conditions which it regarded as the causes of the disease and sources of the "miasma": overcrowding, filth, dampness, faulty drainage, vicinity of graveyards, unwholesome water, and unwholesome food.[86] The Board and its medical followers were strengthened in their beliefs through the fact that they had been able to predict such an increase in morbidity and to designate in advance the very houses where cholera would break out.[87] (Usually houses infected also with typhus). Their own "model buildings"—buildings struck in 1831, but remodeled since—remained this time free after sanitation.[88] The anticontagionists of the General Board of Health were pragmatists insofar as their emphasis was no longer on a discussion of the scientific problem of contagion, but on exposing and removing those conditions whose elimination would prevent cholera, no matter what the rationale. It is in this spirit that they were enthusiastically followed, e. g. by the *British and Foreign Medico-Chirugical Review*.[89] This group thus illustrates most clearly the positive side of anticontagionism, although this positive tendency existed in all outstanding anticontagionists (e. g. B. Rush, Chervin, the Barcelona Manifesto of 1822, etc.). The sanitary activities of the General Board of Health, at least as objectionable a "waste of money" to the merchant class as quarantines, also show that the anticontagionists were more than mere mouthpieces of a ruthless and economy-minded bourgeoisie. The depth of anticontagionism in the England of 1848 is visible from the fact that the conservative London College of Physicians, Maclean's old pet enemy, came out in October, 1848 with a document admitting the impotency of cordons and quarantines.[90] And yet 1849 sees also the first publications of J. Snow on

[85] Tardieu, *l. c.*, p. 154.
[86] See *Report*, pp. 37-63.
[87] *Report*, p. 18.
[88] *Ibid.*, p. 69.
[89] *Brit. For. Med. Chir. Rev.*, Vol. V, p. 216 ff., 1850, VII: 1 ff., 1851. These very eloquent articles are probably the work of John Forbes. See also the significant Southwood Smith quotation in Newsholme, *l. c.*, p. 126, for this pragmatic attitude.
[90] *Ibid.*, p.32.

cholera which were probably among the most effective gravediggers of anticontagionism.

1848-49 brings a reconfirmation of anticontagionism also in France. A. A. Tardieu (1818-1879), the great French hygienist, states in his interesting 1849 book that "it is very evident that measures taken in view of the contagion are entirely without avail, and that consequently the contagion itself is very improbable."[91] He was joined in this opinion e. g. by the hygienists P. Jolly (1790-1879) and J. L. Collineau (1781-1860), and the clinicians Martin-Solon (1795-1856), E. Emery (1780-1856),[92] and J. H. E. Monneret (1810-68).[93]

In Germany the *Medizinische Zentral Zeitung* was anticontagionist in regard to cholera.[94] So was the bright young star of German science, Rudolf Virchow.[95] C. F. Riecke's (born 1802) anticontagionist writings were successful. The famous and very influential chemist Justus Liebig came out for anticontagionism.[96] The majority of Russian physicians was anticontagionist.[97]

A Cholera Quarantine Conference, organized in Paris by Mélier in 1851, was practically without result, mostly because of English anticontagionist opposition under Sutherland. This is understandable in view of the fact that the evidence on the effect of quarantines in the first two pandemics remains rather contradictory and bewildering. Copenhagen was free of cholera with quarantine in 1831, heavily struck in 1852 after abolition.[98] Belgium reported good experiences with quarantine in 1831 and 1848.[99] On the other hand, Tardieu and Lasègue (the latter had made a personal study of the problem in Russia) claimed that there was no difference between the 1830 epidemic (with cordons) and the 1848 epidemic (without cordons).[100] Copeland's explanation of the higher mortality in 1848 because of relaxation of quarantines[101] is balanced by the above-mentioned argument of the Board of Health. The Austrian emperor, the Prussian king, the French government (1832), the Dutch

[91] Tardieu, *l. c.*, p. 111.
[92] *Arch. Gén.* 4. s. 20: 110 ff., 1849.
[93] *Arch. Gén.* 4. s. 16: 521, 1848.
[94] *Schmidt's Jahrb.* 62: 142, 1849.
[95] Virchow, *Ges. Abhandlungen aus dem Gebiet der oeffentlichen Medizin*, Berlin, 1879, Vol. 1, p. 24.
[96] *Lancet*, 1848, II., p. 454.
[97] *Brit. For. Med. Chir. Rev.*, 3: 26, 1849.
[98] Scott, *l. c.*, 699.
[99] *Lancet*, 1848, II., p. 196.
[100] Tardieu, *l. c.*, p. 111; Lasègue, *Arch. Gén.* 4. s., 18: 114, 1848.
[101] *Lancet*, 1849, I, p. 292.

government, the London College of Physicians—all admitted publicly the ineffectiveness of quarantines and cordons.[102]

It seems that during the third cholera epidemic (1852-55) and even more so during the fourth (1865-67)—these two connected with major wars while their two predecessors had been connected with revolutions—the majority of the profession returned to contagion. Winslow has traced recently John Simon's gradual development from anticontagionism in 1849 to contagionism in 1865.[103] This seems to be fairly typical, though some, of course, changed their positions earlier, some later, some never.

It is significant that the *Archives Générales*, still under Raige-Delormé's leadership, softened their attitude toward contagion considerably and progressively after 1850, being 100% contagionist by 1865. In 1853 the Royal College of Physicians made a strongly anticontagionist statement on cholera.[104] The rôles had been reversed within 60 years, the College and government being now anticontagionist, the profession increasingly contagionist. A. Hirsch stated in a survey in 1854 that after a prevalence first of contagionists, then of anticontagionists, now some compromise theory was ruling.[105] He quoted Snow still disparagingly.[106] Only two years later the same author claimed that the majority were contagionist (though he still gave a long list of anticontagionists) and spoke with the greatest sympathy of Snow's and Budd's work.[107] Although C. F. Riecke adopted formally an eclectic position in his 1854 book (spontaneous generation plus contagion plus epidemic constitution) his violent opposition to quarantine revealed his fundamentally anticontagionist position which to a large extent he derived from Hecker and Haeser. On the other hand, he had an inkling of the rôle of the healthy typhoid carrier.[108] This most important and revolutionary *notion of the healthy carrier* was more fully developed by *Pettenkofer* for cholera in and after 1855.[109] In 1857 Griesinger felt that since about 1852 the contagiosity of cholera was generally recognized.[110] In 1859 Milroy held cholera to be " feebly

[102] *Lancet*, 1831-32, I., p. 182; *Arch. Gén.* 27: 137, 1831; *Dict. Encycl. Sc. Méd.* 3. ser., Vol. I, p. 51; *Lancet*, 1831-32, II., 572; G. J. Mulder in *Arch. Physiol. Heilk.*, 1849, 8: 489 ff.

[103] Winslow, *l. c.*, p. 255 ff.

[104] *Lancet*, 1853, II, p. 399.

[105] *Schmidt's Jahrb.* 84: 90, 1854.

[106] *Ibid.*, 84: 92. The same does even the contagionist *Lancet*, 1849, II, p. 318.

[107] *Schmidt's Jahrb.* 92: 252, 259.

[108] Riecke, *l. c.*, p. 165.

[109] Griesinger, *l. c.*, p. 252, 254.

[110] *Ibid.*, p. 255.

contagious," but continued to oppose quarantines.[111] In his 1861 book on puerperal fever even I. Semmelweis called cholera still "non-contagious." S. A. Fauvel's (1813-84) report of 1866 seemed to many definitely to prove the contagiosity of cholera. Mélier reintroduced cholera quarantines in 1866, having reestablished those for yellow fever for 1853. *One of the most signal defeats of anticontagionism was the adoption of the importation and contagiousness of cholera by the Anglo-Indian medical men in 1866, after a resistance of more than 60 years.*[112] And Virchow, the anticontagionist of 1848, admitted in 1869 that "all the more recent research suggests an independent organism, especially a fungus" (as the cause of cholera).[113] That anticontagionism died hard is visible from the fact that the French Academy still received 36 anticontagionist (as against 109 contagionist) reports in an 1884 outbreak of cholera (Philippe Ricord (1800-89) defended in these discussions the non-contagiousness of cholera), and that the British government denied the imported character of a cholera epidemic in Egypt as late as 1885.

Plague and Anticontagionism

When plague struck the English and French troops during the Napoleonic expedition in Egypt in 1798-99, the medical commanders of the French (Assalini, Desgenettes) as well as of the English troops (Sir Robert Wilson) agreed that the disease was non-contagious.[114] This fact can be found in the 1819 report of a committee of the House of Commons on plague and quarantine, representing "the first official inquiry ever made concerning this institution." Although the result of this inquiry was procontagionist, the mere fact of having obtained it at all was a considerable performance. It was due to the perseverance of Charles Maclean (born ca. 1768), who deserves some more detailed attention because of the great rôle he played in the development of anticontagionism.

Maclean had entered the service of the East India Company in 1788, studied yellow fever in Jamaica in 1790, and worked in India since 1792. In 1796 he published his first anticontagionist book in Calcutta,[115] which obviously found wide attention in and outside of India. An American edition appeared in 1797 and a German translation in 1805. Expulsed

[111] Milroy, *l. c.*, p. 10.
[112] *Dict. Encycl. Sc. Méd.* 1. ser. Vol. 16, p. 755, Paris, 1874.
[113] *Arch. f. path. An.* 1869, 45: 279.
[114] Maclean, *l. c.*, p. 90.
[115] Maclean, Ch. and Yates, W., *A View of the Science of Life*, Calcutta, 1796.

from India in 1798 because of a radical political pamphlet, he drifted around observing, writing, agitating, serving with the English army in 1804-5, and joining eventually the Levant Company in 1815. In the Eastern Mediterranean he did serious research on the contagiosity of plague, which he promptly contracted in an Istambul plague hospital, and on which he published a two-volume book in 1817.[116] This book induced the Government to consult the arch-contagionist London College of Physicians in 1818 on plague and quarantines, and resulted in the above mentioned Committee of the House of Commons in 1819. We have encountered Maclean already in the Barcelona yellow fever epidemic of 1821, and obtaining rejection of a quarantine law by the Cortes, Oct. 18, 1822. Maclean seems to have died shortly before his final triumph, that is the relaxation of the plague quarantine by the British government in 1825.

There is no lack of evidence that Maclean made a deep and lasting impression on his contemporaries. Séguier, the French consul general in London, reported in a letter to his government of May 20, 1825, " the opinion of Dr. Maclean, who pretends that plague is not contagious, is prevalent in England." [117] Tweedie, himself a contagionist, stated for the same period the " more general disbelief in the contagious nature of the plague." [118] A collaborator of the Lancet in 1825 declared on the authority of Maclean that cholera was not contagious.[119]

Maclean gave a summary of his opinions in a memorandum to the Spanish Cortes in 1822 during his campaign against the pending quarantine laws.[120] He differentiated " epidemic " from " contagious " diseases. While the true contagious diseases (syphilis, smallpox, etc.) had a specific virus (Maclean was one of the few at the time to poke fun of the idea of spontaneous generation of disease virus [121]); had a clear-cut clinical picture; occurred independently of season, the state of air, and other circumstances; and struck a person but once; the " epidemic " diseases (primarily yellow fever, plague, typhus, and cholera) had protean forms, were clearly seasonal, and could attack the same person repeatedly.

The burden of the proof that these diseases *were* contagious was, in

[116] Id. *Results of an Investigation Respecting Epidemic and Pestilential Diseases.* 2 vols. London 1817-18.
[117] Chervin, 1827, p. 124.
[118] *Lancet*, 1826-27, 12: 777.
[119] *Lancet*, 1825, 6: 275.
[120] Reprinted in Maclean 1824, pp. 198-261.
[121] *Ibid.*, p. 204.

Maclean's opinion, with the other party. But he drew attention to such facts as that attendants, doctors, the family of the sick, etc. experienced in his "epidemic" diseases no above average morbidity (quite different in this respect from "contagious" diseases like smallpox); these epidemic diseases remained localized and seasonal. They would not spread in time and space without limit, as they should, were they contagious. Maclean also claimed that plague fomes proved to be harmless in Turkey, recurrance of plague in the same person frequent, and quarantines completely ineffective to prevent epidemic disases. In his positive theories Maclean was far less consistent: plague was to him entirely dependent on atmospheric influences;[122] Irish typhus resulted from want of food, employment, and hope;[123] yellow fever from filth;[124] and cholera from "local causes" and "winds."[125] Quarantines were really the cause of 19/20 of all cases in epidemics by enforcing confinement in pestilential air; producing concealment of the disease, desertion of the sick, and deadly terror.[126] Quarantines were amoral, ineffective, and the source of enormous gratuitous expenses and vexation.

Maclean's ideas were too extreme, his character too unbalanced, his death too early to effect the general change of ideas concerning the contagiosity of plague. This deed is attributed by Griesinger to *Clot-Bey*. A. B. Clot (1793-1868), French-born and educated, had become the chief army surgeon of the Egyptian dictator Mehmet Ali in 1825. His abilities as a surgeon, his work as an organizer of sanitary improvements, of a medical school, a school of pharmacy, and a school for midwives in Egypt won him international fame. In a great plague epidemic in 1835 Clot's countryman, L. R. Aubert-Roche (1809-74), another remarkable character,[127] convinced him of the non-contagiosity of plague and the use-

[122] *Ibid.*, pp. 94, 219.
[123] *Ibid.*, p. 6.
[124] *Ibid.*, p. 129.
[125] *Ibid.*, pp. 410, 414.
[126] This now seemingly absurd "psychosomatic" explanation of numerous cases in epidemics should not be held against Maclean personally. As La Roche's survey of this concept shows (*l. c.*, p. 69), it was prevalent from the earliest times up to the second half of the last century. In 1849 Tardieu (*l. c.*, p. 109, 236) was still almost alone in denying it.
[127] Aubert-Roche came to Egypt as a political refugee in 1834. His courageous fight against the plague in 1835 with Rigaud brought him in contact with de Lesseps. He returned to France in 1838 and was one of the founders of the Medical Congress of 1845. In 1857 de Lesseps made him head of the medical administration of the Suez Canal project. He filled this position with great success until 1869. His 1840 book on plague and his 1845 book against quarantines found a wide audience. On contagionists and anticontagionists in Egypt 1835 see also Sticker, G., *Die Bedeutung der Geschichte der Epidemien* etc., Giessen 1910, p. 29 ff.

lessness of quarantines. From now on Clot-Bey spent a great deal of his considerable energies and prestige on fighting the theory of plague contagion and plague quarantines. His last book, written in 1866, two years before his death, at the age of 75, is called *Derniers mots sur la peste*. In their anticontagionist attitude Clot-Bey and Aubert-Roche seem to have been in full harmony with the majority of the European physicians practicing in Egypt. Egypt was for centuries regarded as the home of plague, like the West Indies ranked as the home of yellow fever, and India as the home of cholera. And the Egyptian physicians were anticontagionists in regard to their main " native " disease, like the West Indians and Anglo-Indians had been in the corresponding case.[128]

England and Austria had abolished plague quarantine in 1841. In France it was felt that clarity on the subject was needed before one could overcome administrative opposition, especially in Marseilles, to similar changes. The Academy of Medicine charged a committee with a report which was submitted by C. R. Prus (1793-1850) in 1846, hotly debated for many months, and eventually adopted after the usual bickering with the contagionist government and smoothing of formulations. This report, which among other things served as a model of Virchow's famous Upper Silesia report of 1848, followed in its details more the brand of anticontagionism as represented by Aubert-Roche, a " localist," " miasmatist," and sanitary reformer, than the one of Clot-Bey, a " tellurist " and Hippocratic believer in " atmospheric conditions." Prus' main conclusions were that plague was not imported either in Egypt or Syria or Turkey, but arose spontaneously out of humid houses, putrifying animal matter and other filth. That neither contagion nor the contagiousness of fomes nor the inoculability of plague were proven; that the miasma was propagated through the air, not through patients; that ships were dangerous only in ports suffering themselves from an epidemic constitution; and that, therefore, progress of civilization was the only preventive against plague, and Egypt needed mostly a good administration. In the discussion the main champions of contagionism were Pariset and Bousquet, of anticontagionism F. Dubois d'Amiens (born 1799; he became the successor of Pariset one year later), Londe, Piorry, and Rochoux. In adopting the Prus report on plague the Academy sided again with anticontagionism, as it had done in the case of yellow fever in 1828 and cholera in 1832. The discussion lost much of its practical value through the long absence of plague epidemics in Egypt after 1845.

[128] Riecke, *l. c.*, 96; *Lancet* 1828-29, I, p. 390.

Typhus and Anticontagionism

An analysis of the attitude towards typhus in our period is made somewhat difficult by the fact that explicit differentiation between typhus and typhoid was rare even in the 1850's, in spite of the classic work of Bretonneau (1826), Louis (1829), and particularly W. W. Gerhard and Pennock (1837). Still, the disease to which we now apply the term typhus was so obviously contagious that it was recognized as such even by an arch-anticontagionist like Rochoux,[179] (who, by the way, was one of the first to separate typhus and typhoid). Typhoid, on the other hand, seemed so little contagious that its "non-contagiousness" served long as one of the differentiating criteria. Especially the Paris School (e. g. Andral, Chomel in 1834) upheld its non-contagiousness.[180] Murchison found it only "feebly contagious" in 1862,[181] and in 1863 the contagionist Charcot had still to report on many typhoid anticontagionists.[182]

The idea of the non-contagiousnes of true typhus developed thus late, rather as a by-product of the general anticontagionist wave, and was of relatively short duration. Among the first to deny the contagiosity of typhus were Elliotson,[183] and Corrigan, [184] the great Irish clinician and statesman who saw in famine the sole cause of the terrifying Irish outbreaks of 1800, 1817-18, and 1826.

When Virchow, at the occasion of the Upper Silesia epidemic of 1848, declared that "no facts exist that prove contagion, and certain experiences speak against contagion," [185] he was well aware of the novelty of the statement. He was, on the other hand, not a little proud of it, regarding it as truly scientific and modern. The anticontagionism of Grainger, Adams, and Armstrong in regard to typhus showed that the English sanitary movement was equally radical.[186]

The contagionist Millies, in discussing the problem in 1857, stated that numerous anticontagionists did still exist, especially in Paris.[187] This might, of course, be a confusion with typhoid. But Murchison (also

[179] *Dict. de Méd.* XIX, p. 601 ff., 1839.
[180] Murchison, Ch., *A Treatise on the Continued Fevers of Great Britain*, London, 1862, p. 428; see also Griesinger, *l. c.*, p. 120.
[181] *Ibid.*, p. 2.
[182] Charcot, *l. c.*, p. 19.
[183] *Lancet*, 1829-30, II, 543.
[184] *Lancet*, 1829-30, II, 600.
[185] *Archiv. 2*: 263, 1849.
[186] *Lancet*, 1849, I., p. 106, 202.
[187] *Schmidt's Jahrb.* 1857, 96: 250.

a contagionist) made the same statement in 1862.[138] And it is reiterated by Foerster in 1863.[139] Yet by 1868 Virchow, one of the authors of anticontagionism in typhus, declared: "There is much exaggeration, yet the fact remains that the typhus diseases and especially petechial fever may become contagious; that sometimes they may acquire even this quality to the highest degree." And by 1871 he admitted: "As much as I hesitated formerly to admit that contagion is the ordinary way in which typhus epidemics develop, I must confess today that I, like so many earlier observers, am more and more forced, through continuous experience, into the contagionist camp." [139a]

Practical and Theoretical Aspects of Anticontagionism

After having studied the scientific triumphs of anticontagionism in the 1820's, 1830's, and 1840's, and its decline in the 1850's and 1860's, it might be indicated to summarize the practical results obtained by the anticontagionists in the relaxation and abolition of quarantines and cordons, which, after all, was their main goal.

The first to change their quarantine acts were the English and the Dutch in 1825.[140] Further relaxations occurred after 1831 and 1841.[141] From 1849 on up to the 1880's English official bodies came out with anti-quarantine declarations. The first changes in France occurred in 1828 and 1832. In 1835 even Marseilles, super-contagionist since the plague of 1721, softened her quarantines.[142] In 1849 quarantines were suppressed altogether, reinstated in 1850, abolished for cholera again in 1853, and reinstated in 1866.[143] In the general disappointment with quarantines and cordons after 1831 large concessions were made to the anticontagionists in Austria (1841) and Russia (1847).

The practical successes of anticontagionists were not limited to their victories over quarantines. Their operations against "filth" increased greatly their prestige. While it was difficult for the contagionists to prove that a respective epidemic would have been even worse without quarantines, health improvements after removal of "filth" seemed to be causally related to the latter action. Barcelona and Alicante did not

[138] Murchison, *l. c.*, p. 79. He alludes here to the "Sanitary Movement."
[139] *Schmidt's Jahrb.* 1863, 117: 94.
[139a] Virchow, *Ges. Abh.* I, p. 447, 449.
[140] Scott, *l. c.*, p. 752; *Arch. Gén.* 2. ser. 3: 147, 1833.
[141] *Arch. Gén.* 4. s. Vol. X, 487, 1846.
[142] *Dict. de Méd.* Vol. 19, 7: 601 ff., 1839.
[143] *Dict. Encycl. Sc. Méd.*, 3. ser., Vol. 1: 136, 1874.

experience further yellow fever epidemics after such campaigns in 1827, respectively 1804. The General Board of Health could point in the cholera of 1848-49 to the immunity of its cleaned "model houses." (Those parts of Hamburg that had burned down after 1831 and had been rebuilt also remained healthy in 1848).[144] Typhus morbidity[145] and mortality[146] had considerably decreased from the 1840's to the 1860's, thanks to the sanitary measures of the anticontagionist Board of Health and its successors. The anticontagionist Aubert-Roche had an enviable health record during the construction of the Suez Canal in the 1850's and 1860's.

In examining critically the theoretical foundations of anticontagionism, we should be aware of the fact that certain basic weaknesses were common to *both* parties, anticontagionists and contagionists. Both parties occasionally used unreliable information. Both parties were still obsessed with the Hippocratic idea of the air as primary medium of transmitting the noxious element, whether miasma or contagium, at the expense of any other possibility (this idea prevails even with Henle and Holland). In both parties those were still numerous who believed in the fundamental unity of fevers.[147] Both parties suffered from the "fallacy of a single cause."[148] Both parties were reduced to reasoning by analogy, a procedure the dangers of which were clearly shown by Wunderlich.[149] Both parties used the animal experiment still very little, and what experimenting they did lacked method and inventiveness. Though the experiments of the next generation did not solve all problems either, they afforded an uncomparably higher degree of certainty than the mere observations on which both parties based their reasoning. Among these observations the contagionists would usually pick a set of more or less true facts that confirmed their theory, leaving out another set of equally true, but incompatible facts, which in their turn the anticontagionists would triumphantly present as proof of their theory. Or, "facts" and "observations" being highly complex and ambiguous, both parties would take up the same fact, but succeed in interpreting it in the contrary sense.[149a] One of the truest state-

[144] *Brit. For. Med. Chir. Rev.*, 7: 38, 1851.

[145] Murchison, *l. c.*, p. 8.

[146] *Dict. Encycl. Sc. Méd.* 2 s., Vol. 7, p. 526, 1873.

[147] As a matter of fact no anticontagionist ever made a statement comparable in absurdity to the one of Pariset that the Cadiz yellow fever was transformed cholera and imported by a ship from *Calcutta* (La Roche, *l. c.*, p. 204).

[148] Winslow, *l. c.*, 250 (Another version of the same fallacy: S. Smith, Henderson, and Florence Nightingale felt that all fevers had one cause. Murchison, *l. c.*, p. 4.)

[149] Wunderlich, *l. c.*, p. 323.

[149a] Londe developed this point in *Arch. Gén.* 4. s., 11: 489, 1846.

ments in this direction is that of Wakley that the most disturbing facts (like low morbidity of attendants) *were fundamentally not explained by either theory.*[150] Some have not been explained up to this very day. "Observations" depended also to a large extent on the location of the observer. Brochard writes in 1851: "Les médecins conduits par leur observation à la croyance d'une forme contagieuse habitent tous de petites localités . . . rien ne manque à leurs enquêtes; mais l'autorité manque à leurs paroles."[151] Griesinger too explains anticontagionism through the rule of big city doctors. "But in Paris, as in all big cities, the facts of contagion of as frequent a disease (as typhoid) can rarely be observed conclusively."[152] The great triumphs of a rapidly growing chemistry, the influence of a Liebig, the recent victories over "vitalism" would particularly militate against a biological explanation of epidemics as given by the contagium vivum.

I am afraid that, forced to decide ourselves a hundred years ago on the basis of the existing materials, we would have had a very hard time. *Intellectually and rationally the two theories balanced each other too evenly. Under such conditions the accident of personal experience and temperament, and especially economic outlook and political loyalties will determine the decision. These, being liberal and bourgeois in the majority of the physicians of the time brought about the victory of anticontagionism.* It is typical that the ascendancy of anticontagionism coincides with the rise of liberalism, its decline with the victory of the reaction. Of course, the latter was not the only factor of the decline of anticontagionism. Was it new discoveries as Bernheim and others declared? Certainly, Snow and Budd made quite an impression. Yet, some doubts are at least allowed, in view of the fact that the change was prior to the decisive discoveries of Pasteur, Koch, etc. The discoveries of Davaine and Villemin were isolated and little known. Henle's crown witnesses, the itchmite or the fungi in skin diseases, could most easily be dismissed as inconclusive and bad analogies by the anticontagionists,[153] when even a contagionist like Trousseau reacted to these discoveries only by no longer counting scabies and favus among the contagious diseases, but

[150] *Lancet*, 1831-32, II, p. 156. Same idea as Griesinger, *l. c.*, p. 256, and Holland, *l. c.*, p. 356.

[151] *Arch. Gén.* 4. s. 23: 123.

[152] Griesinger, *l. c.*, p. 120. This does, of course, only mean that the tendency towards anticontagionism was stronger in big cities. There were also plenty of anticontagionists in small places. See e. g. *Lancet*, 1831-32, I, 796.

[153] Riecke, *l. c.*, p. 30.

transferring them to the parasitary group.[154] Roy states quite correctly in 1869:

"Mais la difficulté que les fauteurs de cette doctrine (Henle and Holland) éprouvèrent à généraliser des faits de parasitisme externe aux maladies du sang la laissa tomber assez longtemps dans l'oubli et tous les pathologistes s'en tinrent à la théorie que M. Liebig commença à développer dès 1839."[155]

A. Hirsch makes a somewhat revealing statement in 1856: "The more the belief in the contagious nature of cholera became widespread in the medical world, the smaller became the number of facts in which contagious genesis could not be proven."[156] This suggests that to a certain extent emotional conversion, based on the accumulated despair of repeated cholera epidemics and on the normal "swing of the pendulum," preceded intellectual insight and discovery, rather provoking than being provoked by the latter. While contagionism had "pragmatically" hardly done better than anticontagionism, it could claim one major accomplishment at this turning point: it had kept alive interest in that part of experimental research that would bring the solutions of the future. Henle had produced Koch.

Far from underplaying the economic implications of their fight, the anticontagionists usually emphasized readily this popular aspect of the problem. They wrote long and detailed dissertations of exactly how many millions of pounds, francs, or dollars were yearly lost through the contagionist error.[157] Chervin, who characterized the whole as a political, administrative, moral, medical, and commercial problem,[158] was not afraid of such revealing word combinations as "question du plus haut intérêt pour l'humanité et le commerce" or "entraver le commerce et consacrer une erreur funeste à l'humanité.[159] Gaultier wrote in 1833: "Quarantine is useless, and the injury it inflicts on the commercial relations and maritime intercourse of the country is an absolute and uncompensated evil."[160] Anticontagionist medical journals reprinted speeches of commerce-minded deputies.[161] Liberal and commercial newspapers like the *Journal de Com-*

[154] *Dict. Encycl. Sc. Méd.* 1. ser. Vol. 20, p. 1-2, 7, 1877.

[155] Roy, F., *Revue historique des différentes théories qui ont eu cours pour expliquer l'origine des maladies infectieuses.* Strassbourg, 1869, p. 15.

[156] *Schmidt's Jahrb.* 92: 255, 1856.

[157] Maclean, *l. c.*, p. 30 ff.; Chervin in *Arch. Gén.* 2. s., 3: 147, 1833.

[158] Chervin, 1827, p. 132.

[159] *Ibid.*, p. 107, 116.

[160] *L. c.*, p. 34.

[161] E. g. *Arch Gén.* 27: 134, 1831.

merce, the *Constitutionel*, and the *Courier* supported Chervin in 1827. French medical authors of the 60's and 70's saw very clearly the connections between anticontagionism and commercial interests—in England.[162] Still, to call the anticontagionists simply "mouthpieces of commercial interest" would be a regrettable oversimplification of the situation. To many of them both slogans: freedom of commerce (no quarantines), and freedom of science (anticontagionism) were, together with others, like freedom of the individual (against any bureaucracy), the natural expression of the same fundamental attitude and social position. Some, as the following quotation from Maclean shows, were perhaps not so much interested in commerce at all, but tried, in appealing to commercial interests, to mobilize every possible ally:

"I am rather at a loss to conceive how their being injurious to commerce could, in a commercial country, be regarded as an argument against seeking the abolition of otherwise pernicious establishments. . . . For my part, far from thinking it culpable to have availed myself of the support of commerce in combatting the ridiculous but very pernicious dogmas of medical schools. . . . I am very free to confess that I have, upon this occasion, diligently sought to range every interest, over which I could exercise the smallest influence, on the side of truth." [163]

It should also not be overlooked that into the contagionist attitude no less earthly factors entered, like the needs of real estate interests in denying "local causes" of epidemics.

The political background of the anticontagionist discussion was no less obvious. The leading anticontagionists—Maclean, Chervin, Magendie, Aubert-Roche, Virchow, etc.—were known radicals or liberals. The leading contagionists (with the lone exception of the liberal professor Henle) were high ranking royal military or navy officers like Moreau de Jonnès, Kerandren, Audouard, Sir William Pym, Sir Gilbert Blane, or bureaucrats like Pariset, with the corresponding convictions. The anticontagionists skillfully interspersed political arguments in their discussion. Maclean did not tire to trace contagionism back to the Pope's political maneuver of transferring the Council of Trent in 1547, made possible by the ad hoc contagionist theories of his servant Fracastorius,[164] published, by the way, in 1546. This was also a fine occasion to mobilize anticatholic and antireligious emotions. Appealing to the "irreverence of the age for mere authority," [165] Maclean thundered against the "monopoly"

[162] Dutrolau, *l. c.*, p. 444; *Dict. Encycl. Sc. Méd.* 3. s., Vol. I, p. 97-98.
[163] Maclean, *l. c.*, p. XXIII.
[164] *Ibid.*, p. 6, 213.
[165] *Ibid.*, p. 69.

of the College of Physicians.[166] The same spirit was kindled by reminders of the shooting of three anticontagionists in Thorea in 1815, the same act of violence in Noja in Apulia in 1815, the burning of Dr. Armesto's anticontagionist book in Spain in 1800, and the hanging of an anticontagionist doctor and tailor in Brandenburg in 1707.[167] To Maclean the very worst aspect of the quarantines was that they were ready "engines of despotism."[168] Chervin expressed freely his disgust with the "servile spirit" that penetrated French contagionists, but satisfied himself that those in power would not be there tomorrow.[169] Writing this three years before 1830, he proved not too bad a prophet.

Economic factors did not only determine the stand of many in the anticontagionism discussion. *Economic factors* were consciously used by many to give a *causal explanation of epidemics* in our period (see Maclean above, Villermé, Magendie, etc.). This "sociological" (as contrasted to biological) theory of epidemics can be found already in the 18th century under the influence of enlightenment. (J. P. Frank, Chassanis, Targioni-Tozzetti). Yet its spread is a feature of the 19th century. I have already discussed in my doctor's thesis in detail Virchow's famous social epidemiological ideas, which were *one* of the reasons for his later reluctance to accept the results of bacteriology,[170] and more recently Virchow's French predecessors.[171] In listing the epidemiological theories of the 19th century, I feel it would be justifiable to add to the two great divisions: the *physico-chemical or geographic* (including the "tellurists" and "miasmatists") and the *biological* (parasitists, bacteriologists), a third one, the *sociological*, represented by such men as Virey, Villermé, Mélier, Aubert-Roche, Alison, Davidson, and Virchow. The lines of division will not always be clear-cut and coincide with other lines of division. A "sociologist" might, for instance, be a contagionist (Davidson) or, more often, an anticontagionist.[172] The essential characteristic of the sociologist is that all these problems become of a very secondary importance when compared to social factors. Typical in this respect are: the message of Gerardin and

[166] *Ibid.*, p. 21.

[167] Riecke, *l. c.*, p. 5.

[168] Maclean, *l. c.*, pp. 35, 214, 271.

[169] Chervin, 1827, p. XVIII.

[170] Ackerknecht, E. H., Beitraege zur Geschichte der Medizinalreform von 1848, *Sudhoffs Arch.* 25: 62-183, 1932.

[171] Id. Hygiene in France 1815-1848. *Bull. Hist. Med.* 22: 117-155, 1948. Especially for the post-1848 developments of these theories see the excellent study of G. Rosen: What is Social Medicine?, *Bull. Hist. Med.* 21: 674-733, 1947.

[172] Like the editorial writer of the *Brit. For. Med. Chir. Rev.* 5: 217 ff., 1850.

Gaymard from Poland: "Les Commissaires pensent que le principal préservatif du cholera consiste dans l'amélioration de la condition sociale des populations." [173] Aubert-Roche's motto for his plague book, which is also the basis of the Prus report of 1846: "La civilisation seule a détruit la peste en Europe, seule elle l'anéantira en Orient," or the typhus studies of Alison, Bateman, Corrigan,[174] and Franque.[175] I cannot take up the whole Virchow complex here again, but I would like to refer at least to such typical features as the conclusions of his 1848 report, his paper on the epidemics of 1848,[176] his thesis that social conditions determine whether typhus or typhoid develops,[177] his interpretation of cretinism as a social disease,[178] etc. The sociological theory, claiming a kind of "social epidemic constitution," suffers often from the same haziness that is so characteristic of the theories of telluric "epidemic constitution."

This strange story of anticontagionism between 1821 and 1867—of a theory reaching its highest degree of scientific respectability just before its disappearance; of its opponent suffering its worst eclipse just before its triumph; of an eminently "progressive" and practically sometimes very effective movement based on a wrong scientific theory; of the "facts," including a dozen major epidemics, and the social influences shaping this theory—offers so many possible conclusions that I feel at a loss to select one or the other, and would rather leave it to you to make your choice. I am convinced that whatever your conclusions, whether you primarily enjoy the progress in scientific method and knowledge made during the last hundred years, or whether you prefer to ponder those epidemiological problems, unsolved by both parties at the time and unsolved in our own day, all your conclusions will be right and good except for the one, so common in man, but so foreign to the spirit of history: that our not committing the same errors today might be due to an intellectual or moral superiority of ours.

[173] *Arch. Gén.* 28: 427, 1832.
[174] Murchison, *l. c.*, p. 75.
[175] *Schmidt's Jahrb.* 96: 251, 1857.
[176] *Ges. Abh.* 1879, I., p. 117 ff.
[177] *Ibid.*, p. 284-285.
[178] *Ges. Abh.*, 1856: 927.

THE PLACE OF HISTORY IN MEDICAL EDUCATION

GEORGE ROSEN

Ours is an age of crisis and social upheaval, a transitional period characteristically marked by revaluation of all values. Reflecting these conditions and affected by them, medical education is slowly but inevitably undergoing transformation and adapting itself to changing conditions. Medical education will be something very different tomorrow, and the historian may well raise the question: What part has history in the training of tomorrow's physicians? To answer this question he must raise another: Is the study of medical history only a fad; is it simply "a delightful hobby for retired practitioners," [1] and a mark of culture and intellectual refinement; or is it sufficiently important to be considered an essential element in medical education? No definite place in the scheme of modern medical education has yet been assigned to history. Apart from a few outstanding exceptions, opportunism has characterized the attitude of medical education toward the history of medicine. Nevertheless, it is possible to obtain an unequivocal answer to our question. Historical analysis, by explaining how it came into existence, will throw into clear-cut relief the prevailing relation between medical education and history.

The historical element in medical teaching is not new. For example, *Anonymus Londinensis*, the earliest history of medicine, is extant in a version that W. H. S. Jones believes to be "a copy, made by a medical student, of lecture notes also made by a student." [2] It is in the late eighteenth century and the early nineteenth century, however, that the beginnings of the modern teaching of medical history are to be sought.

Pragmatism was the dominant mode of thought in the medical history of the later eighteenth century. The pragmatic trend in medical historiography first showed itself in England, but it was in Germany under the influence of Albrecht von Haller that it achieved its fullest development. Guided by the idea of progress, pragmatic history was practical in intention. It endeavored to learn from the medicine of the past, in order to instruct the medical reader and to teach him a useful lesson.[3] Haeser

[1] H. E. Sigerist: *The University at the Crossroads*, New York, Henry Schuman, 1946, p. 19.

[2] W. H. S. Jones: *The Medical Writings of Anonymus Londinensis*, Cambridge, At the University Press, 1947, p. 8.

[3] G. von Selle: *Die Georg-August Universität zu Göttingen 1737-1937*, Göttingen, Vandenhoeck and Ruprecht, 1937, pp. 69-70; Edith Heischkel: Die Medizinhistoriographie

called attention to the historical spirit that prevailed in Göttingen in the eighteenth century, and attributed its origin and development to Haller. The inclusion of medical history in the curriculum at Göttingen may be taken as indicative. From 1750 on the professor of medical theory was also obligated to give lectures on medical history.[4] It should be noted however, that in 1743 the Statute of the University of Würzburg already required that a *Collegium privatum* on the history of medicine, be given, "so that nothing might be lacking which could serve to provide a more complete knowledge of the art of medicine." Furthermore, in 1749, the professor of medical theory was charged with the teaching of medical history.[4a] In other schools, however, the history of medicine was, for the most part, summarily disposed of in the professor's introductory lecture to his course. That the teaching of medical history was becoming more widespread in Germany toward the end of the eighteenth century is suggested by the publication in 1786 of Blumenbach's *Introductio in historiam medicinae litterariam* and in 1792 of Ackermann's *Institutiones historiae medicinae*, which were intended as textbooks, as well as by the announcement of lectures on the subject in 1798 at Heidelberg.[5]

The teaching of medical history on pragmatic grounds first made its appearance in France following the Revolution. The Convention abolished the medical faculties in 1793, but the exigencies of war and the need for a regulation of medical training led to the establishment of three medical schools (*écoles de santé*). These schools were created by the decree of the 14 primaire, Year III (December 4, 1794).[6] This decree also established at Paris a joint chair for legal medicine and medical history.

im XVIII. Jahrhundert, *Janus* 35: 91-95, 1931; Stephen d'Irsay: *Albrecht von Haller. Eine Studie zur Geistesgeschichte der Aufklärung*, Leipzig, Georg Thieme Verlag, 1930, pp. 70-79.

[4] H. Haeser: *Lehrbuch der Geschichte der Medizin und der epidemischen Krankheiten*, 3. Bearbeitung, Jena, Gustav Fischer, 1881, II, pp. 565 ff., 1089.

[4a] Alfons Fischer: *Geschichte des deutschen Gesundheitswesens*, Berlin, F. A. Herbig, 1933, vol. II, pp. 31-32.

[5] J. C. G. Ackermann: *Institutiones historiae medicinae*, Nürnberg, 1792; *Medizinische Bibliothek*, 1785-1787, p. 724; August Hirsch: *Geschichte der medicinischen Wissenschaften in Deutschland*, München und Leipzig, R. Oldenbourg, 1893, p. 365; H. von Seemen: *Zur Kenntnis der Medizinhistorie in der deutschen Romantik*, [Beiträge zur Geschichte der Medizin, III], Zürich, Leipzig, Berlin, Orell Füssli, 1926, p. 61.

[6] Stephen d'Irsay: *Histoire des universités françaises et étrangères* (2 vols.) Paris, Editions Auguste Picard, 1933-35, vol. II, pp. 142-143, 149; A. Prévost: *La Faculté de médecine de Paris, ses chaires, ses annexes, et son personnel enseignant de 1794 à 1900*, Paris, A. Maloine, Editeur, 1900, *passim*; A. Prévost: *L'Ecole de santé de Paris (1794-1809)*, [Paris], 1901, *passim*.

Shortly thereafter, in 1795, two other courses with historical implications were added to the curriculum.[7] Pierre Sue, librarian of the school, was charged with the teaching of medical bibliography, and M. A. Thouret, its director, undertook to give a course on the " Doctrine of Hippocrates."

Underlying these acts was an essentially pragmatic motivation. On October 14, 1799, at the reopening of the school, Thouret pointed out that medical history is " so commendable for the useful examples that it offers us, and even more instructive, perhaps, because of the errors that it teaches us to avoid than for the precepts that it transmits. . . ."[8] Furthermore, the philosophy of Ideology was strongly represented in the Paris school (Cabanis, Chaussier, Pinel, Sue, Thouret).[9] Ideology tended to reinforce and to foster the trend toward empirical investigation in medicine, and in this endeavor medical history, with special emphasis on Hippocrates, was employed to strengthen the Ideologic position. The function of Hippocratism in Ideologic thinking on medical problems was to support its realistic approach.[10]

Undertaken in the first flush of enthusiasm two of these courses remained only expressions of good intentions. Thouret died in 1810 without ever having given a single lecture on Hippocratic doctrine.[11] It is of interest to note that Laennec endeavored to obtain this chair, but it was finally suppressed at the end of August or early in September 1811.[12] Similarly, Sue does not seem to have given his course on medical bibliography. The subject was removed from the curriculum in 1808, but was restored in 1815 as a position for Moreau de la Sarthe. In 1819, the chair of bibliography was combined with that of medical history.

[7] Ch. Daremberg: *Histoire des sciences médicales* (2 vols.), Paris, J.-B. Baillière et Fils, 1870, vol. I, pp. 3-4; R. Blanchard: L'Enseignement de l'histoire de la médecine à la Faculté de Paris, *Janus* 8: 583, 1903.

[8] Daremberg, *op. cit.*, pp. 3-4.

[9] G. Rosen, The Philosophy of Ideology and the Emergence of Modern Medicine in France, *Bull. Hist. Med.* 20: 328-339, 1946.

[10] See for example P. J. G. Cabanis: *Du degré de certitude de la médecine*, nouvelle édition, Paris, 1803; P. J. G. Cabanis: *Rapports du physique et du moral de l'homme*, 3rd edition (2 vols.), Paris 1815, vol. I, p. 23; also J. A. Chaptal: *Memoires personnels rédigés par lui-même de 1756 à 1804* . . . in, *Mes Souvenirs sur Napoleon*, par le Cte Chaptal, Paris, E. Plon, Nourrit et Cie, 1893, p. 19.

[11] Alfred Rouxeau: *Laennec après 1806, 1806-1826*, Paris, J.-B. Baillière et Fils, 1920, pp. 112-113.

[12] *Ibid.*, p. 115. On Sept. 15, 1811 Laennec wrote to his father: " The professorship of Hippocratic doctrine vacated by the death of M. Thouret, has finally been abolished because M. Thouret, who at the same time was director of the school, never gave a single lecture. Together with the hope of competing for this position, I lose my hope of becoming a professor at the school, at least for a long time and perhaps for ever."

On the other hand, the professorship of medical history created in 1794 was filled, and courses were given from 1795 to 1822, when the position was abolished.[13] The number of students attending the lectures on medical history varied considerably, from as few as 24 in 1797-1798 to as many as 142 during 1800-1801.[14] Nevertheless, this venture in the teaching of medical history left only few and rather minor achievements when it was terminated. Of the men who held the chair of medical history, only the name of Cabanis is still remembered, and his contributions lie rather in the fields of philosophy and psychology than in that of history.[15] In 1830, the medical faculty requested the reestablishment of a chair of medical history, but without success; and it was not until 1870 that this was realized.[16]

The status of medical history in the German universities throughout most of the nineteenth century offers a marked contrast to the situation in France. Courses of lectures on the general history of medicine and on special medico-historical subjects are common in the university catalogues.[17] In addition to the strictly historical lectures, there was also a course for entering medical students which was generally offered as "Encyclopedia and Methodology of Medicine."[18] Under this imposing title, the student was given a survey of medicine.[19] In 1825, for instance,

[13] A. Prévost: *La Faculté de médecine de Paris, ses chaires, ses annexes et son personnel enseignant de 1794 à 1900*, Paris, A. Maloine, Editeur, 1900, pp. 29-31, 203-204; Daremberg, *op. cit.*, p. 5 (Daremberg's chronology does not agree with that of Prévost, but since the latter's statements are based on archival study, I have given them preference.)

[14] A. Prévost: *Les études médicales sous le Directoire et le Consulat*, Paris, H. Champion, 1907, pp. 21-22.

[15] The occupants of the chair of medical history were: Lassus, full professor (14 frimaire to 2 messidor an III); Mahon, associate professor (14 frimaire to 2 messidor an III); Goulin, associate professor (2 messidor an III to 9 prairial an VII); Mahon, full professor (2 messidor an III to 1 pluviôse an IX); Cabanis, associate professor (9 prairial an VII to May 6, 1808); Le Clerc, full professor (9 pluviôse an IX to January 23, 1808); Sue, full professor (January 30, 1808 to March 28, 1816); A.-A. Royer-Collard, full professor (May 12, 1816 to February 23, 1819); J.-L. Moreau de la Sarthe (February 23, 1819 to November 21, 1822). See A. Prévost: *La Faculté de médecine de Paris . . .* pp. 30-31.

[16] Prévost, *op. cit.*, pp. 47-48.

[17] Von Seemen, *op. cit.*, pp. 51-69.

[18] H. E. Sigerist: Enzyklopädie und Methodologie der Medizin, *Internationale Beiträge zur Geschichte der Medizin. Festschrift zur Feier seines 60. Geburtstages am 8. December 1928 Max Neuburger gewidmet von Freunden, Kollegen und Schülern*, Wien, 1928, pp. 273-277.

[19] See, for instance, August Förster: *Grundriss der Encyclopaedie und Methodologie der Medicin*, Jena, Friedrich Mauke, 1857, p. VII ("Historische Uebersicht der Ansichten über die Aufgaben und die Bedeutung der Medicin").

during the summer semester, Johannes Müller gave such a course in Bonn.[20]

Of the influences which contributed to this result, several are particularly significant. The pragmatic approach was carried over from the eighteenth century. The knowledge and experience of the ancients were to help in solving the problems of the present. Even more influential, however, was the tremendous increase of interest in history and the rise in the importance assigned to it. This development dates from the end of the eighteenth century and is to be attributed to the movement known as romanticism.

It is generally recognized that the romantic movement had an important share in the rise of modern historiography.[21] Romanticism was an ideology of cultural crisis, having developed in opposition to the Enlightenment and its culminating achievement, the French Revolution. Romanticism emphasized the principles of organicism, continuity and development. In the dialectic of romantic philosophy, reality developed according to certain simple ideas. Carl Becker pointed out that "If we would discover the little backstairs door that for any age serves as the secret entranceway to knowledge, we will do well to look for certain unobtrusive words with uncertain meanings that are permitted to slip off the tongue or the pen without fear and without research. . . ."[22] In the romantic vocabulary three terms are particularly characteristic in this respect—*das Ganze* (the whole),[23] *das Streben* (striving, or aspiration), and *Einmaligkeit* or *Eigentümlichkeit* (uniqueness). Indicative of the influence of romantic thought on medical history is the frequent occurrence of these concepts in historical writing.[24] Dietrich Georg Kieser, professor at Jena, and one of the chief representatives of *Naturphilosophie*

[20] Wilhelm Haberling: *Johannes Müller. Das Leben des rheinischen Naturforschers*, Leipzig, Akademische Verlagsgesellschaft, 1924, p. 59.

[21] G. von Below: *Die deutsche Geschichtschreibung von den Befreiungskriegen bis zu unseren Tagen*, Leipzig, Quelle and Meyer, 1916, pp. 8-15; Georg Mehlis: *Die Deutsche Romantik*, München, Rösl and Cie., 1922, pp. 64, 130, 131-138; Jacques Barzun: Romantic Historiography as a Political Force in France, *Journal of the History of Ideas* 2: 318-329, 1941.

[22] Carl L. Becker: *The Heavenly City of the Eighteenth Century Philosophers*, New Haven, Yale University Press, 1946, p. 47.

[23] The ideas of holism and organicism were not discovered by the Romantic philosophers. See, for instance, Immanuel Kant's *Kritik der Urtheilskraft*, herausgegeben von Benno Erdmann, zweite Stereotypausgabe, Hamburg and Leipzig, Leopold Voss, 1884, pp. 219-223 (¶ 65. "Dinge als Naturzwecke sind organisirte Wesen").

[24] Von Seemen, *op. cit.*, pp. 33-49; [A. W. E. T. Henschel]: Ein Blick auf das Ganze der Geschichte der Medizin, *Janus*, 3: 1-28, 1848. Over Henschel's article there still falls the long shadow of Romantic idealism.

in medicine, in 1817, stated his point of view on the study of medical history. "Not enough attention," he wrote, "has been devoted to the description of Life, the essential idea of history, as an organic whole in a constant process of development; or to the demonstration of this progressive tendency, which is its purpose, in the life of nations, as well as in the life of the sciences. Even though this has been vaguely recognized by some, still we feel that it has been worth the trouble to demonstrate this also for the history of medicine." Furthermore, Kieser pointed out, "History is the portrayal of the origin, development and cultivation of an organic whole, and the knowledge of this history is knowledge of the object itself. . . . All life consists only in progressive development, and this is true also of science." [25] In 1829, Heinrich Damerow, profoundly influenced by Hegel, published a history of medicine in which he defines his subject as "a living organ in the great organism of history. . . ." [26] Finally, it is noteworthy that even those who overtly renounced the philosophical history of the Romantics were not yet entirely free of their philosophical bias. When Henschel, the editor of *Janus*, asserts that history manifests itself through an eternal triad which is the organic soul of history, one cannot fail to see the categories of the Hegelian system.[27]

A third significant influence may be seen in the humanism best represented perhaps by Wilhelm von Humboldt. The great majority of university students, he saw, were impelled by utilitarian motives of study to prepare for the professions of law, medicine, or theology. While accepting the existence of professional education in the university, he warned against the accumulation of unintegrated information and believed that history might exercise a unifying function.[28]

These influences are reflected in the wide variety of historical courses offered by the medical faculties. Among the special subjects dealt with were the history of anatomy and physiology; ancient medicine with particular reference to Aristotle, Hippocrates, Celsus, Pliny, Galen, Aretaeus and Caelius Aurelianus; medical systems from Hippocrates to Hahnemann; the lives and achievements of great doctors; the history of pathology and therapy; the literature of surgery; on the surgical instruments

[25] Dietrich Georg Kieser: *System der Medicin*, Bd. I, Halle, 1817-19, cited by von Seemen, *op. cit.*, p. 42.

[26] Werner Leibbrand: *Romantische Medizin*, Hamburg-Leipzig, H. Goverts Verlag, 1937, p. 173.

[27] Henschel, *op. cit.*, p. 23.

[28] Wilhelm von Humboldt: *Ausgewählte Schriften*, Berlin, Wilhelm Borngräber, n. d., pp. 19-43, 443-455.

of ancient and recent times; the history and literature of obstetrics; the history of psychiatry. Several courses on the history of cholera given in 1831, reflect the epidemic prevalent at that time. Finally, further evidence of the romantic influence may be seen in the numerous presentations of the history of animal magnetism, mesmerism, and Gall's phrenology.[29]

It is useful in taking the full measure of this historical movement to look at the ideas held by the teachers of medical history on its function and value as a desirable feature in medical education. The teaching of medical history was an effort to impart a broader culture to the medical student, as well as a deeper knowledge of the development of medicine and its aims. From a broader point of view the physician would be made aware of his place in the scheme of things, and at the same time historical instruction would serve the practical purpose of training the doctor to learn from the experience of the past. According to Karl Friedrich Burdach, in 1800, the history of medicine is "the history of the different methods that have been used at various periods to cure diseases. Thus it is also the history of the changes experienced by all the separate sciences on which medicine is based." At the same time, however, "It presents the causes and effects of these different forms of treatment and thus becomes our teacher, by showing us by what paths the highest aim of the [medical] art has been approached most closely, and by warning us against the various ways in which others have been led astray by improper methods."[30] Burdach conceived medical history broadly, indicating as sources for its study medical literature, coins and medals, laws, linguistics, political and cultural history, and the history of philosophy.

These characteristic themes appear again and again. In 1826, J. F. Hofacker asserted that "The history of medicine investigates and teaches how medicine, including its individual branches, developed from its beginnings and gradually became what it is today; and it does this in relation to the general history of mankind of which the history of medicine is only a part." Emphasizing the educational influence of the historical approach, Hofacker points out that it stimulates the student to critical observation. The history of medicine is the "best teacher to protect us against bias and pride, and to maintain that humility which an experiential science should never lose. It does this by acquainting us with a series of theories which have prevailed and have been repudiated in

[29] Von Seemen, *op. cit.*, pp. 51-69.

[30] Karl Friedrich Burdach: *Propädeutik zum Studium der gesamten Heilkunst*, Leipzig, 1800, cited by von Seemen, *op. cit.*, p. 15.

medicine in the course of its history. Much that is praised as new and infallible, history proves to be old, and it accepts no credo but that of experience and sound reason." [31] Similarly, J. W. Arnold, who taught anatomy in Heidelberg and Zürich, insisted that the study of medical history belongs to general education; and that without history the physician remains " ignorant forever of the origin, the successive development, and the interrelations of many medical experiences." The ultimate aim of teaching medical history is " to give physicians a clear insight into the present state of medicine, and the relations of the branches of medicine to each other and with other sciences." [32]

Consideration was also given to the time at which the student should be made acquainted with the history of medicine. In general, it was felt that medical history should be presented at the end of the medical course. Burdach recommended that the student attend a course on medical bibliography in the eighth semester and hear the history of medicine in the ninth semester. Hofacker believed that medical history should be dealt with briefly in the first semester within the framework of the lectures on " Encyclopedia of Medicine," and again in greater detail in the last semester of medical study.[33] Friedrich Trendelenburg, the surgeon, who attended the lectures of August Hirsch in 1863, during his first semester at the University of Berlin, commented in his autobiography: " I should naturally have left the history of medicine for later semester, since one can understand the history of a science only when one is familiar with the science itself." [34]

By the middle of the century, however, it was becoming evident that the very elements which had helped to bring this widespread historical movement into being were adding less to the strength than to the vulnerability of history's place in medical education. The theoretical underpinning by which medical history justified its place in the curriculum was sapped by the growth and progress of experimental science. When it became painfully obvious that more useful and sounder knowledge could be garnered faster by looking through a microscope than by studying older medical literature, the pragmatic argument lost its force.[35] Of

[31] J. F. Hofacker: *Anleitung zum Studium der Medicin oder äussere Encyclopädie und Methodologie derselben*, Tübingen 1826, cited by von Seemen, *op. cit.*, pp. 24-25.

[32] J. W. Arnold: *Hodegetik für Medicin-Studierende oder Anleitung zum Studium der Medizin* . . . Heidelberg and Leipzig, 1832, cited by von Seemen, *op. cit.*, pp. 26-27.

[33] Von Seemen, *op. cit.*, pp. 16-24.

[34] Friedrich Trendelenburg: *Aus heiteren Jugendtagen*, Berlin, Julius Springer, 1924, p. 118.

[35] A. W. E. T. Henschel; Ist die Geschichte der Medicin an der Zeit? *Janus*, 1851, pp. 6-7, 10-11.

equal, if not greater, significance for the further development of the teaching of medical history in the German universities was the conflict of romantic idealism with experimental science. This conflict assumed a form most injurious to the place of history in medical education.[36] Indicative is the situation in 1863 at Berlin. Friedrich Trendelenburg, then a student, later recalled that "August Hirsch, the excellent scholar who only recently had been called to Berlin from Elbing, . . . lectured to very few auditors."[37] It had taken a struggle of several decades to eliminate *Naturphilosophie* from medicine, so that the earlier generations of scientifically trained physicians in Germany were in no mood to traffic with anything having the slightest relation to romantic thought. In essence, this attitude was shared by medicine with science in general; and the fate of the teaching of medical history is actually one aspect of the crisis in educational and cultural values that Germany experienced during the latter half of the nineteenth century. This climate of opinion was to exercise a profound influence on the further development of the teaching of medical history, an influence still to be felt at present. Before tracing this development, however, let us glance at the place of history in the medical schools of other countries during the nineteenth century.

The teaching of medical history in Vienna dates from the beginning of the century. Separate lectures for the history of medicine were first given in 1808 by Heinrich Attenhofer. A year later, Joseph Eyerel, a pupil of Maximilian Stoll, also received permission to teach this subject. In 1811, Andreas Wawruch began to give a course devoted particularly to the history of epidemics.[38] Voices were not lacking, however, to deny the need for independent instruction in medical history. Without denying the importance of knowledge of history for medical men, Johann Peter Frank felt that special courses on this subject were unnecessary. It would suffice if each teacher presented a brief historical sketch of his field.[39] Not until 1833, when Romeo Seligmann obtained the *venia legendi*, was the teaching of medical history at Vienna firmly established. Seligmann initiated a tradition which continued without interruption

[36] Hermann von Helmholtz: *Vorträge und Reden* (2 vols.), Fünfte Auflage, Braunschweig, Friedrich Vieweg und Sohn, 1903, vol. 1, pp. 163-165.

[37] Trendelenburg, *op. cit.*, p. 118.

[38] Max Neuburger: Ueber den Unterricht in der Geschichte der Medizin in Oesterreich-Ungarn, *Janus* 8: 583, 1903; Max Neuburger: Die Geschichte der Medizin als akademischer Lehrgegenstand, *Wiener klinische Wochenschrift*, 1904, p. 1217.

[39] J. P. Frank: *System einer vollständigen medicinischen Polizey*. Band 6, Teil 2, Vienna, 1817, p. 15.

for a century. He became associate professor in 1848, and full professor in 1869. Upon his retirement in 1879, Seligmann was succeeded by Theodor Puschmann, who occupied the chair of medical history for two decades until 1899. Max Neuburger followed him as professor in 1904 and remained active until forced out by the Nazis.

At Budapest, instruction in medical history was given by August Schöpf from 1835 to 1844, by Stockinger from 1844 to 1849, and later by Sigmund Purjesz and T. von Györy.[40]

As in Austria, the teaching of medical history in Italy is already to be found early in the century.[41] It began at Florence in 1806, with Giovanni Bertini as the occupant of the first chair. Transferred to Pisa at the close of the Napoleonic period, this position was held until 1845 by C. Pigli. In 1846, upon the death of the incumbent, the Grand Duke of Tuscany appointed Francesco Puccinotti to the chair which he held until his death in 1872.

At Naples, the medical faculty was constituted in 1811 with nine professorships, of which one was devoted to the history of medicine and medical bibliography. In 1816, this position was divided, and instruction was given in two courses, one dealing with the history of medicine, the other with the text of Hippocrates and Greek medicine. The two divisions were reunited in 1848 into a chair of the history of medicine and the text of Hippocrates. In 1860, Salvatore de Renzi, the outstanding historian of the Salernitan school, was appointed to this position which now became a professorship of medical history. It may be noted that De Renzi combined the teaching of history with that of medical geography.

At the time of the unification of Italy, in 1861, the history of medicine was taught at Bologna, Florence, Modena, Naples, Palermo and Turin. At Modena the subject was obligatory for third-year medical students. But as in other countries, the last third of the century saw a decline of interest in the subject, and a slow but unmistakeable disappearance of instruction in medical history from the curriculum. This development went hand in hand with the rise of scientific medicine. It was a result of the conflict between the new experimental and the older speculative medicine. The physiologist Salvatore Tommasi was an ardent exponent of the experimental standpoint in medicine, and in his zeal to dissociate

[40] Max Neuburger: Ueber den Unterricht in der Geschichte der Medizin in Oesterreich-Ungarn, *Janus*, 8: 583, 1903.

[41] Modestino del Gaizo: L'Enseignement de l'histoire de la médecine aux universités italiennes pendant la seconde moitié du dixneuvième siècle, *Janus*, 6: 351-357, 1901; Arturo Castiglioni: *A History of Medicine*, New York, Alfred A. Knopf, 1941, p. 754.

himself completely from the past wrote a series of letters on the uselessness of medical history and its inability to contribute to scientific progress.[42] Not until the end of the century was there a revival of history in the medical faculties.

Medical history was also taught in Spain during the nineteenth century.[43] A course on "Bibliography and History of the Medical Sciences" was listed in 1845 in the curriculum of the Medical Faculty of Madrid. Similar courses were given in 1847, 1850, 1852 and 1857. From 1875 on instruction in the history of medicine was given regularly. In Spain, the doctorate in medicine was not required for admission to practice. For those students who wished to acquire the academic degree of Doctor of Medicine, attendance at a course in medical history was obligatory.

The first course in medical history in Denmark was given about 1803-1804 by J. C. Tode at Copenhagen.[44] Two decades later, from 1823 to 1826, J. D. Herholdt again took up the history of medicine paying particular attention to the medical history of Denmark. During the second third of the century, from 1839 to1859, courses on the history and literature of anatomy and physiology were given frequently by D. F. Eschricht, professor of physiology. In 1845-46, A. G. Sommer, professor of pathological anatomy, gave a series of lectures surveying the history of medicine. After 1859, the teaching of medical history lapsed until 1870-71 when T. S. Warncke, professor of pharmacology at Copenhagen, again covered the history of medicine in a series of lectures. Finally, in the spring of 1874, medical history struck root in Copenhagen when Julius Petersen began the lectures upon which he later based his book, *Hovedmomenter i den medicinske Laegekunsts historiske Udvikling* (1876).[45] Not until 1889, however, was he appointed professor of medical history.

In Sweden, there was no professorship for medical history during the nineteenth century. Such instruction as was imparted to the students appears to have been given very irregularly, and toward the end of the century became more and more sporadic.[46] Yet medical history was a

[42] A. De Martini: *Di Salvatore Tommasi e dell' indirizzo moderno della medicina*, Naples, 1888; L. Galassi: *Discorso intorno alla dottrina d'Ippocrate ed allo spirito della medicina moderna*, Milan, 1861.

[43] R. Ulecia: L'Enseignement de la médecine en Espagne, *Janus* 8: 33, 1903.

[44] K. Caröe: Histoire de la médecine en Danemark, *Janus* 4: 299-303, 1899.

[45] The German translation, *Hauptmomente in der geschichtlichen Entwicklung der medicinischen Therapie*, appeared in 1877.

[46] Ernst Nachmanson: Anteckningar om studiet av medicinens historia, förnämligast i Tyskland, *Svenska Läkaresällskapets Handlingar* 49: 1-25, 1923.

required subject for medical students in their final examination, and its importance was officially recognized. In 1859, a Commission studying medical education in Sweden, expressed the opinion that the inclusion of history as an examination subject " does not need justification, since every physician must have knowledge of the history of his science and his art." [47] The University Statute of November 13, 1874 required medical history in the final examination, and indicated the scope of the subject as comprising " the general outlines of the history of medical theories, medical literature, and of the most important epidemic diseases." [48]

In the medical faculties of the Russian universities during the nineteenth century, the teaching of medical history in many respects followed the pattern established in Germany and Austria.[49]

Only a few sporadic ventures in the teaching of medical history characterize the United States during this period. Dunglison's lectures held at the University of Virginia from 1824 to 1833 are noteworthy only in being the first American project of its kind, and in having been stimulated by Thomas Jefferson.[50] No further effort in this direction was attempted until 1877 when John Shaw Billings, who had been appointed Lecturer in the History of Medicine at the Johns Hopkins a year earlier, gave a course of twenty lectures on medical history, medical legislation and medical education. In 1891, while holding the post of Lecturer in Municipal Hygiene, Billings gave another series of lectures on the history of medicine. With the opening of the Medical School in 1893, he received an appointment as Lecturer in the History and Literature of Medicine, a position which he held until 1905 when he resigned.[51] The third American venture in the teaching of medical history was made in 1897 by Roswell Park at the University of Buffalo.[52]

It should not be overlooked, however, that there was probably also a considerable amount of informal teaching of medical history. Dr. Winslow Lewis, a teacher of Oliver Wendell Holmes, is described as having

[47] *Ibid.*, p. 21.

[48] *Ibid.*, pp. 21-22.

[49] The following account is based upon D. M. Rossiski: The Study of the History of Medicine in Russia, *Bull. Hist. Med.* 21: 959-965, 1947. See also *Janus* 8: 654, 1903 for review of a book by L. S. Morochovetz.

[50] R. Dunglison: *History of Medicine*, 1872, pp. III-IV.

[51] John Shaw Billings Memorial Number, *Bull. Inst. Hist. Med.* 6: 223-386, 1938. (See in particular Alan M. Chesney: "John Shaw Billings and the Johns Hopkins Medical School," pp. 271-284; and Sanford V. Larkey: "John Shaw Billings and the History of Medicine," pp. 360-376.)

[52] Roswell Park: *An Epitome of the History of Medicine*, Philadelphia, New York, Chicago, F. A. Davis Company, 1897, pp. V ff.

" mixed medical history and talk of old books with anatomical puzzles." [53] Indicative also is Dr. Ordronaux's account of how he came to translate the *Regimen Sanitatis.*

> Somewhere in the early days of our Civil War I happened to be passing an evening with the late Dr. John W. Francis, of New York, a personal friend and in many senses my preceptor. . . .
>
> On the occasion of my visit, I found him discussing with an English colonial bishop the merits of the *Regimen Sanitatis Salerni* as a repository of ancient medical wisdom. At the conclusion of some quotation which he made from the Latin text, the bishop made some remarks about the quantity of its verse and the difficulty of any symmetrical translation. To this criticism the Doctor assented, and turning to me, said:
>
> " Here is a book that needs a new English version. The last translation is still in somewhat ancient English. It ought to be made anew and by an American physician, as a classical contribution to our medical literature, which, as yet, contains no translation of the Salernian masters. Why don't you undertake it as a duty to the Profession? You must do it."
>
> This request he repeated on several subsequent occasions, until I finally promised to take up the task.[54]

In France, during the second third of the century, there were signs of a revival of interest in the teaching of medical history.[55] In 1837, Dezeimeris, then librarian in the medical faculty, energetically urged the usefulness of medical history and the consequent necessity of reestablishing a chair for the teaching of this subject. The surgeon Malgaigne, in 1841, gave a series of lectures on the history of surgery. In 1845, a French medical congress urged the need for reorganizing the teaching of history in the medical faculties, but nothing came of this. Two years later, Daremberg persuaded the authorities of the Collège de France to announce a course on the history of medicine. Several years after this, from 1852 to 1854, Andral gave a course on the history of medical theories. In 1859, the Faculty of Medicine, on being consulted by the Minister of Public Instruction regarding any existing gaps in the teaching program, urged the creation of a chair of medical history. This proposal was rejected, and it was not until March 9, 1870 that a new chair of medical history was established, to which Daremberg received the appointment.

[53] Eleanor Tilton: *Amiable Autocrat. A Biography of Dr. Oliver Wendell Holmes*, New York, Henry Schuman, 1947, p. 71.

[54] Transactions of The Johns Hopkins Hospital Historical Club, *Medical Library and Historical Club* 2: 49, 1904.

[55] Ch. Daremberg: *Histoire des sciences médicales* (2 vols.), Paris, J.-B. Baillière et Fils, 1870, vol. i, pp. VII-IX, 6-7; *Janus* 2: 399, 1847; Förderung des medicinischen Geschichtsstudiums in Paris, *Janus* 3: 833-834, 1848.

Daremberg's approach to the teaching of medical history derived from his aim of carrying out the intentions of his master, Emile Littré. In 1829, Littré had pointed out that "If the science of medicine did not wish to drop to the rank of a craft, it must occupy itself with its history and care for the old monuments inherited from the past." [56] Moreover, Littré was not alone a medical historian, but also a social philosopher; a disciple and friend of Auguste Comte, the philosopher of positivism. As such, Littré believed that the task of the historian was to follow the development of the human spirit through time, and to show the relation between past and present. Analysis of this kind would provide the laws underlying the variegated phenomena with which the historian dealt. As the major emphases in his lectures, Daremberg mentioned their concern with the general development of medicine, the determination of the laws underlying this development, the circumstances that have advanced or retarded it, and finally, the consideration of the reciprocal influences that the diverse branches of medicine have exercised on each other and on the advance of science.[57]

Nevertheless, despite the promising start made by Daremberg, the renaissance of the teaching of medical history was not to come from France. Several circumstances contributed to this end. In the first place, Daremberg died in 1872, after having occupied his chair for only two years, and was thus unable to develop anything resembling a school. Secondly, none of his successors were men of outstanding achievement either in the teaching or the writing of medical history. His immediate follower was Lorain, who died in 1875, thus also occupying the chair for some two years.[58] The position was then held by Parrot, Laboulbène, Brissaud, Déjerine and Ménetrier, none of whom were distinguished in the history of medicine, however excellent they may have been in the branches of medicine which were their primary interest. The third factor which militated against a significant development of instruction in medical history was the unfavorable intellectual climate, dominated as it was by the religion of science,[59] or better perhaps by the idolatry of science.

This third factor was not specifically characteristic of France. In

[56] Daremberg, *op. cit.*, Dedication to Émile Littré.

[57] Daremberg, *op. cit.*, p. 15.

[58] *American Medical Weekly* 3:273, 1875; Blanchard, *op. cit.*, p. 583.

[59] I have borrowed the phrase "religion of science" from a paper by Edwin H. Ackerknecht: Paul Bert's Triumph, *Essays in the History of Medicine presented to Professor Arturo Castiglioni on the occasion of his seventieth birthday April 10, 1944* [Supplements to the Bulletin of the History of Medicine, No. 3], Baltimore, The Johns Hopkins Press, 1944, p. 17.

fact, it was a marked feature of European culture after the middle of the century; but nowhere was this bias in favor of omnipotent science more evident, and its meaning for the teaching of medical history more clearly and more radically expressed in terms of practical consequences than in Germany. Under the pressure of specialized experimental work the older tradition of the *universitas litterarum* was rapidly undermined, and the university threatened to dissolve into a conglomeration of narrowly specialized professional and technical schools.[60] The methods and aims of university teaching were reinterpreted in terms of the assumption that the purposes of a university and of research in natural science were identical. As medicine became more and more scientific, it was content to accept these attitudes. Helmholtz, in 1877, undoubtedly expressed the consensus of the majority of physicians when he concluded a discussion of the state of medicine with the comment, ". . . I believe we have every reason to be satisfied with the success of the treatment which the natural scientific school has applied, and to the younger generation we can only recommend that they continue the same therapy." [61]

Medicine and the humanities had come to a parting of the ways, and the consequences of this unfortunate development for the teaching of medical history soon made themselves manifest. One by one the lights of medical history went out in Germany. Several isolated teachers of medical history remained in a few universities, but the situation around the turn of the century is probably most clearly illuminated by Richard Koch's statement that in 1907, when he attended the lectures of Julius Pagel at Berlin, he was the only auditor.[62]

Yet it was in this very period that the seeds were sown which would give rise to a renaissance of medical history. Some of the leading scientists soon realized that historical studies could not be jettisoned without the loss of certain elements necessary for a liberal education. Du Bois-Reymond, in 1872, pointed out the advantages of the historical approach to the teaching of natural science; and he emphasized that no matter whether one studies an organism, a political organization, a language, or a scientific theory, the significance and the relations of the object of study are best revealed by the history of its development.[63]

[60] Hermann von Helmholtz: Ueber das Verhältniss der Naturwissenschaften zur Gesammtheit der Wissenschaften, in: *Vorträge und Reden* (2 vols.), Fünfte Auflage, Braunschweig, Friedrich Vieweg und Sohn, 1903, vol. 1, pp. 157-185.

[61] Helmholtz; Das Denken in der Medicin, *op. cit.*, vol. 2, p. 190.

[62] R. Koch: Die Bedeutung der Geschichte der Medizin für den Arzt, *Fortschritte der Medizin* 38: 217-225, 1921, (p. 217).

[63] Emil Du Bois-Reymond: Ueber Geschichte der Wissenschaft, in: *Reden* (2 vols.), Leipzig, Veit and Comp., 1886-87, vol. 2, p. 350.

An equally important, although more indirect influence was exerted by the critical approach to academic positivism represented by Wilhelm Dilthey, the philosopher of historicism, and by Wilhelm Windelband and Heinrich Rickert, the South German value theoreticians, all of whom were concerned with reestablishing the study of history as an essential element of liberal education. Suggestive of this influence are Sudhoff's use, in 1906, of the concept of nomothetic and idiographic sciences, and Diepgen's attempt, in 1913, to apply to the history of medicine Rickert's differentiation between natural sciences and cultural sciences, or the humanities.[64]

Most significant, however, from an immediate point of view, was the circumstance, during the last quarter of the nineteenth century, that in Theodor Puschmann medical history had not only a very able representative and a most eloquent spokesman, but also a man who laid the foundation for a renaissance of medical history.

It was just ten years before his death, at the Heidelberg meeting of German scientists and physicians in 1889, that Puschmann presented his well-known address on the significance of history for medicine and the natural sciences.[65] This was not the first time that he had dealt with the subject. Upon the assumption of his professorship in 1879, Puschmann had delivered an inaugural address on medical history as an object of academic instruction.[66] Taken together, these addresses present in clear and cogent form the ideas upon which Puschmann believed the teaching of medical history should be based, and which justify its inclusion in the medical curriculum.

Historical knowledge, he pointed out, is not indispensable for the practice of medicine in a strictly technical sense. A physician can treat a wound successfully without knowing anything about the methods used by Hippocrates and Galen. But having said this, Puschmann felt that medicine as a learned profession had interests that transcended the purely utilitarian. As a part of his education the physician must be imbued with a sense of the evolution and gradual refinement of what he comes to know as scientific truth. In the same spirit in which Dilthey wrote, " What man

[64] Karl Sudhoff: Theodor Puschmann und die Aufgaben der Geschichte der Medizin, *Münchener Medizinische Wochenschrift, 1906*, p. 1672; Paul Diepgen: Ueber das Verhaeltnis der Geschichte der Medizin zur modernen Heilkunde und den Wert medizinhistorischer Forschung für diese, *Die Naturwissenschaften*, 1913, p. 1290.

[65] Th. Puschmann: Die Bedeutung der Geschichte für die Medicin und die Naturwissenschaften, *Deutsche medizinische Wochenschrift* 15: 817-820, 1889.

[66] Th. Puschmann: Die Geschichte der Medizin als akademischer Lehrgegenstand, *Wiener medizinische Blätter*, 1879, pp. 1069-1072, 1093-1096.

is, he can learn only from history," [67] Puschmann emphasized that "Anyone who wants to have a complete and thorough understanding of scientific facts must study the history of their origin." [68]

The values of the genetic viewpoint are threefold—pragmatic, cultural, and ethical. In a very real sense, the teaching of medical history has a practical side. For anyone who wants to contribute to the extension of knowledge in a particular field of science the study of its history is an imperative duty. In order to avoid the reproach of superficiality and to achieve true success, such a person, when he approaches the investigation of his problem, must already have mastered completely everything on it in the literature. Furthermore, a sound historical basis gives the physician a more secure vantage point from which to judge newer developments as they appear. It enables him to understand that medical ideas have their source not only in technique, but to a much greater extent in human imagination and judgment. Indeed, once this point has been grasped broad vistas open up for the physician. Our understanding of ourselves is enhanced as we learn to enter into the experience and thought of others. The broad relations of medicine to politics, social conditions, philosophy, and religion become apparent, and the physician learns that the history of medicine is a part of the general history of culture. In this way, the history of medicine expands its horizon and becomes a history of the human spirit.[69]

To accomplish this, Puschmann urged that chairs for the history of medicine and science be established in the German universities. This would also encourage young physicians to devote time and energy to a field from which they turned away because it offered no openings.

The immediate response to Puschmann's plea was meager. At the Czech University in Prague, A. Schrutz became *dozent* for medical history in 1897, and in 1900 was appointed professor.[70] At Graz, in 1898, Viktor Fossel became professor for the history of medicine, yet, as he pointed out in his introductory lecture, the situation had changed but little in the course of a decade. The history of medicine was still taught at only a few of the German language universities. "Of these," said Fossel, "the University of Vienna is at present the only one with a full professorship for medical history, while several German faculties have

[67] Wilhelm Dilthey, *Gesammelte Schriften*, vol. VIII, p. 224.
[68] Puschmann, *Wiener med. Blätter*, 1879, p. 1070.
[69] Puschmann, *Deutsche med. Wochenschrift*, 1889, p. 818.
[70] Max Neuburger: Ueber den Unterricht in der Geschichte der Medizin in Oesterreich-Ungarn, *Janus*, 8: 583, 1903.

tried to remedy the situation by charging the teacher of pharmacology hygiene or ophthalmology with the task of lecturing on the history of our science." [71]

The year 1905 marks a turning point in the teaching of medical history. The widow of Theodor Puschmann in 1901 bequeathed her fortune to the University of Leipzig for the promotion of scientific work in the field of medical history. In 1905, Karl Sudhoff accepted the newly created chair of medical history at Leipzig on condition that a department be established.[72] It is noteworthy that in 1904 an anonymous writer in the *Münchner medizinische Wochenschrift* proposed that the Puschmann bequest be used for the establishment of a special institute for the history of medicine, citing in this connection Sudhoff's suggestion in 1901 for a museum of medical history, and Baas's proposal to organize a medico-historical research seminar.[73] For the staff of such an institute the writer proposed a full professor, who would also be the director, and an associate professor, whose chief task besides sharing the teaching load with the director would be to guide the medico-historical seminar. To fill these posts the names of Sudhoff and von Oefele were suggested.

Puschmann had recognized that interest in medical history could be furthered by organizing sections on the history of medicine at scientific congresses. Following this suggestion, a section was organized in 1896 at the Braunschweig meeting of German scientists and physicans, but it was only a small beginning.[74] Not until 1898, when the *Gesellschaft deutscher Naturforscher und Aerzte* held its annual meeting at Düsseldorf, where Sudhoff organized a brilliant exhibition illustrating the history of medicine, was the place of the section firmly established. This activity was followed in 1901 by the organization of the German Society for the History of Medicine and Science, with Sudhoff as president.

Thus, when Sudhoff began his academic career at the age of fifty-two, he had already had considerable experience as an organizer, and this he applied to the development of medical history within the University. Under his aegis, the Institute developed from year to year. It would not

[71] V. Fossel: Die Geschichte der Medicin und ihr Studium, *Wiener klinische Wochenschrift*, 1898, p. 1028.

[72] Henry E. Sigerist: Karl Sudhoff, the Man and the Historian, *Bull. Inst. Hist. Med.* 2:3-6, 1934.

[73] Die Puschmann-Stiftung für Geschichte der Medicin, *Muenchener medizinische Wochenschrift*, 1904, pp. 884-885.

[74] Theodor Meyer-Steineg: Die Entwicklung der medizinischen Geschichts-Wissenschaft in den letzten Dezennien, *Reichs-Medizinal Anzeiger*, 35: 321-325, 1910.

be exaggerated to say that the establishment of the Leipzig Institute and the appointment of Karl Sudoff as director to a very considerable degree determined the objectives and directions for the investigation and teaching of medical history during the first half of the twentieth century.

Indicative of the influence exerted by the example which Sudhoff set at Leipzig is the fact that in 1910 medical history was being taught at Berlin, Bonn, Budapest, Edinburgh, Erlangen, Geneva, Jena, Lemberg, Leyden, Vienna and Würzburg.[75] At these schools there were professors or instructors specifically charged with the teaching of this subject. In addition, occasional instruction was given at Basel, Breslau, Freiburg, Göttingen, Graz, Halle, Heidelberg, Munich, and Tübingen. Furthermore, medico-historical collections were started in Vienna and Jena.

The work of Karl Sudhoff was not an isolated phenomenon. It was only the culmination of a movement which at the end of the nineteenth century and during the first two decades of the twentieth century brought about a renaissance of medical history.[76] This movement manifested itself in various ways both in Europe and America. In 1896, *Janus*, an international journal for the history of medicine, was founded by H. F. A. Peypers. Medical history in Great Britain, despite outstanding achievements by such men as Greenhill, Adams, Creighton and Payne, was largely neglected. In 1899, E. T. Withington remarked that " in Britain the introduction of history as a definite portion of the medical curriculum has not yet reached the stage of serious suggestion." [77] Yet by 1903 proposals were being made to establish professorships or lectureships in medical history, and the Royal College of Physicians of London accepted a gift of £2000 given by Mrs. Fitz Patrick to establish a lectureship on the history of medicine.[78] In Germany, the *Bundesrat* received a draft for a law to reintroduce medical history into the university curriculum.[79] The significance of medical history for the physician and its place in medical education were also under discussion in Sweden and Denmark at this time. In 1903, Julius Wiberg made a strong plea for the teaching of medical history in Denmark.[80] At the same time societies for medical

[75] *Ibid.*, p. 324.

[76] H. F. A. Peypers: L'Avancement de l'histoire de la médecine, *Janus*, 6: 490-493, 1901.

[77] E. T. Wittington: Medical History in England, *Janus* 4: 22-25, 1899.

[78] The Study of Medical History, *Janus* 8: 53-54, 1903; James Finlayson: Library Demonstrations in the Teaching of the History of Medicine, *Janus* 8: 190, 1903.

[79] *Janus* 6: 59, 1901.

[80] J. Wiberg: Om Studiet af Medicinens Historie og den historiske Medicin, *Bibliotek for Laeger* 4: 113-124, 1903; see also Nachmanson, *op. cit.*, pp. 22-23.

history were founded. Mention has been made of the organization of the German society in 1901. About this time the *Société française d'histoire de la médecine* was established. Similar organizations were founded in Holland in 1903 and in Italy in 1908.[81] Impressive was the medical history movement in the United States. In many instances American activities were held up to Europeans as examples to follow.[82]

The original impetus to the medical history movement in the United States came from John Shaw Billings, whose lectures at Johns Hopkins have already been mentioned. It is not surprising therefore to find Baltimore playing a distinguished part in this movement. Nevertheless, there is evidence that active interest in medical history was widespread. In 1901, the following were mentioned as teachers of medical history: C. W. Dulles in Philadelphia, Thomas Gray at Minneapolis, C. L. Nichols in Boston, Roswell Park at Buffalo, Burnside Foster in St. Paul, and Sarah Hackett Stevenson at the Women's Medical School in Chicago. Commenting on this information, a writer in *Janus* said that it showed how much more seriously the teaching of medical history was taken in American schools.[83] It is quite likely that sporadic instruction was given in various medical institutions, usually by some member of the faculty interested in the subject. Alfred E. Cohn remarks that when he went to medical school, at the turn of the century, the professor of physiology "gave a few lectures on the history of the discovery of the circulation of the blood."[84] The survey which Eugene F. Cordell made in 1904 probably gives the best picture of the place of medical history in the American medical school in the first decade of the century.[85] He investigated conditions in 14 leading medical schools (Harvard, Yale, Cornell, Buffalo, Columbia, New York, Pennsylvania, Johns Hopkins, Maryland, Virginia, Tulane, Chicago, Michigan and Minnesota) and found that only three (Pennsylvania, Maryland and Minnesota) were giving full courses of 14 to 16 lectures. As for the others, "there are four 'lectureships,' one just established and still without an incumbent, and another held jointly with a 'Clinical Professorship of Dermatology.' One of the 'courses' consists of three lectures! There is but one professorship, and that an 'honorary' one. In two institutions 'some' instruction is given by the

[81] Meyer-Steineg, *op. cit.*, p. 324.
[82] See for instance *Janus* 8: 53, 504, 537, 1903; *Janus* 2: 601-603, 1897-98.
[83] Peypers, *op. cit.*, p. 492.
[84] Alfred E. Cohn: *No Retreat From Reason*, New York, Harcourt, Brace and Company, 1948, p. 252.
[85] Eugene F. Cordell: The Importance of the Study of the History of Medicine, *Medical Library and Historical Journal* 2: 268-282, 1904.

Professor of Therapeutics and the Assistants of Surgery, respectively; in the latter case only in surgery. In one, and that one, strange to say, Harvard, lectures were attempted, but 'no great interest was shown' and they were discontinued. There is no uniformity in those receiving instruction; sometimes it is the sophomores, sometimes the juniors or seniors, and sometimes any that *choose* to attend. In but one is the claim made that the course is compulsory. In none is there any examination. One can readily imagine what the attendance must be under such circumstances, and the experience of Harvard is instructive." [86] It must be added that Cordell did not overlook the important rôle of the Johns Hopkins Hospital Historical Club, commenting that since its founding it "has exercised a profound influence not only locally, but throughout the entire country."

As to the values to be derived from the teaching of medical history, there was general agreement. These were summed up by Cordell in the following statement:

1. It teaches what and how to investigate.
2. It is the best antidote we know against egotism, error and despondency.
3. It increases knowledge, gratifies natural and laudable curiosity, broadens the view and strengthens the judgment.
4. It is a rich mine from which may be brought to light many neglected or overlooked discoveries of value.
5. It furnishes the stimulus of high ideals which we poor, weak mortals need to have ever before us; it teaches our students to venerate what is good, to cherish our best traditions, and strengthens the common bond of the profession.
6. It is the fulfillment of a duty—that of cherishing the memories, the virtues, the achievements, of a class which has benefited the world as no other has, and of which we may feel proud that we are members.[87]

Opinions differed, however, on the way in which the history of medicine should be taught in order to achieve these values. In 1902, William Osler, writing in the *British Medical Journal* gave a brief statement of the methods adopted in the Johns Hopkins Medical School.[88] After mention-

[86] *Ibid.*, p. 270.

[87] *Ibid.*, p. 281. For earlier statements of these points see John S. Billings: Medical Bibliography, *Transactions of the Medical and Chirurgical Faculty of the State of Maryland*, 1883, pp. 58-80; Two Letters by John Shaw Billings on the History of Medicine. With a Foreword by Sanford V. Larkey, *Bull. Inst. Hist. Med.* 6: 394-398, 1938; Roswell Park: *An Epitome of the History of Medicine*, Philadelphia, New York, Chicago, F. A. Davis Company, 1897, pp. V-VII; The Teaching of Medical History, *Medical Library and Historical Journal* 2: 57-58, 1904.

[88] William Osler: A Note on the Teaching of the History of Medicine, *British Medical Journal*, 1902, vol. 2, p. 93.

ing Billings's lectures, and the Historical Club, Osler went on to discuss his own method of instruction.

> In the everyday work of the wards, and of the out-patient department, the student may be helped to get into the habit of looking at a subject from an historical standpoint. In my outpatient class this is made a special feature of the teaching. A case of exophthalmic goitre comes in and the question at once is put, Who was Graves? Who was Parry? Who was Basedow? Of course the student does not know; he is told to bring, on another day, the original article, and he is given five or ten minutes in which to read a brief historical note. . . .
>
> Once a week, over a little "Beer and baccy," I meet my clinical clerks in an informal conference upon the events of the week. For half an hour I give a short talk on one of the "Masters of Medicine," in which, as far as possible, the original editions of the works are shown. In the present crowded state of the curriculum it does not seem desirable, to add "The History of Medicine" as a compulsory subject. An attractive course will catch the good men and do them good, but much more valuable is it to train insensibly the mind of the student into the habit of looking at things from the historical standpoint. . . .

There is no doubt that a method of this kind has definite advantages. Above all it is flexible, and, as James Finlayson, of Glasgow, pointed out, can be adjusted to the requirements of one's audience. Moreover, it can be combined with instruction by other and more usual methods.[89] On the other hand, it is equally clear that this type of instruction is dependent upon local opportunities both as to the availability of a teacher and a demand from students. Nor should one forget that Osler, in addition to being available himself, had another advantage in favor of his approach. He was one of a group of medico-historical collectors who greatly influenced the development of medical history in the United States during the first three decades of the present century. Dr. Viets has characterized the members of this group as "men of scholarship, charm, book collecting instincts and the long purse."[90]

Eugene Cordell, on the other hand, drew very different conclusions from his study of 1904.

> Having now shown the value—nay, I should rather say the necessity—of the study of medical history, I shall conclude with a few words regarding its teaching. So important a branch should receive the highest consideration. It should be taught in no desultory fashion, but as thoroughly as any other. There should be a full chair of the history of medicine in every university. A systematic course of reading should be required in addition to the lectures, which should be not less

[89] See above footnote 78.

[90] Henry R. Viets: Edward Clark Street (1874-1947), *Bull. Hist. Med.* 21: 843-845, 1947.

than sixteen to twenty in number. It should be made a subject of examination, for all experience proves that in no way can the attendance of the students be enforced. The time is near at hand when the standing of universities will be judged by their attitude to this branch, and when it will be assigned a front rank in the curriculum.

Ten years after this forceful recommendation, Arnold Klebs again looked at the place of history in the medical school and concluded "that the study of the history of medicine has [not] made very decided progress as a feature in medical education." [91] He did point out, however, that the number of academic courses on the subject was not an exact measure of the interest manifested in the subject itself. Even where academic instruction is given in medical history, "It cannot be said that it enjoys a very great popularity, here or abroad." Klebs attributed this state of affairs more to an inadequate approach to the problem than to lack of interest. "I believe," he said, ". . . that we have a fertile soil, which, properly tilled and sown, will some day bring forth a bountiful harvest." Emphasizing that the lukewarm interest hitherto shown in history as an element in medical education should not discourage further efforts. he asserted that "If a distinct place were assigned to it in the medical curriculum, it could, by its achievements, by the influence it would exert on students and teachers of all departments, form one of the most useful and inspiring features in the whole of medical education." As to the method by which this could be accomplished Klebs recommended that pursued at the University of Leipzig. "Didactic lectures alone," he concluded, "are insufficient and time-consuming. Whatever direct teaching is given students would be based best on objective demonstration and practical work in bibliographical and historical methods rather than on systematic historical lectures. Such instruction will be given in separate premises easily accessible to all departments, where the objects for demonstration should be collected and classified and where special research can be carried on." Nevertheless, fifteen years were yet to elapse before this program would be implemented.

Clearly underlying these American developments is a pragmatic trend. Through an understanding of the evolution of medicine the physician can participate in general culture, thereby enhancing the prestige of the profession and his own education. In 1916, Robert E. Schlueter reiterated that history is an essential study for the physician. "The history of science," he states, "like general history is an instrument of culture. . . .

[91] Arnold C. Klebs: The History of Medicine as a Subject of Teaching and Research, *Bull. Johns Hopkins Hosp.* 25: 1-10, 1914.

She contributes to form citizens who are not only scientists but who are also men and citizens. History rounds off and completes an education. . . ." [92] Like Puschmann, he insisted that medical history is necessary for "the completion of a general education, for the fixation of technical knowledge, the prevention of professional narrowness and the ennobling of character."

Lewis S. Pilcher, in 1924, forcefully stated the same point. The physician "cannot respond adequately to his duties, either to himself, his patients, his community, or to his profession, without acquiring a knowledge that must extend far beyond familiarity with tools of daily use. He must become a man of culture as well as a man of skill; and just to the degree that he answers to such higher professional ideals will not only his own enjoyment and success in his work be increased, but the estimation and influence in which he will be held by all men will be magnified." [93] To achieve this aim medical history should be systematically taught in every medical school. "How early in the medical curriculum should subjects of medical history, medical ideals and ethics be introduced? My answer," said Pilcher, "would be, as early as possible. They should be a part of the ABC of medical studies. The atmosphere of the great names of the past and the ideals by which they were animated should surround the medical student from the beginning of his career."

Meanwhile, medical history in Europe, particularly in Germany, had developed in another direction. Non-medical scholars gradually began to cultivate various fields of medical history. The increasing significance of this trend may be grasped from the fact that it was the Academies of Berlin and Copenhagen which in 1905-1906 initiated the *Corpus medicorum graecorum*. The help of the philologists was welcomed,[94] but it was not long before their point of view began to dominate the history of medicine. These scholars had no need to relate their studies to the problems of contemporary medicine, and medical history tended more and more to become an independent discipline. The pragmatic element in the history of medicine was relegated to the background.[95] It was recognized, however, that this development harbored the danger that medical history

[92] Robert E. Schlueter: The Necessity for Studying Medical History, *Journal Missouri State Medical Association*, 13: 385-390, 1916.

[93] Lewis S. Pilcher: Medical History in Medical Education, *Long Island Medical Journal* 18: 400-407, 1924.

[94] Meyer-Steineg, *op. cit.*, p. 323.

[95] Owsei Temkin: An Essay on the Usefulness of Medical History for Medicine, *Bull. Hist. Med.* 19: 9-47, 1946 (See particularly the changes undergone by Pagel's *Einführung in die Geschichte der Medicin* from 1898 to 1922, on page 37).

might become an ivory tower for a few specialists. Voices were raised in sharp criticism. In 1904, a year before Sudhoff came to Leipzig, a *privatdozent* at that university commented as follows: [96]

> I have no desire to represent the philological-antiquarian study of the older history of medicine as useless or superfluous. Indeed, I recognize its value and justification. Nevertheless, such researches are of value only to a relatively narrow group of physicians who are interested in literary and cultural history, and consequently, can expect only a limited reception. . . .
>
> If the history of medicine is to have any value for the further development of medical science and for the general education of future medical generations, something which can justifiably be demanded, then it cannot consist solely . . . in a study of sources, or in the discovery, criticism and annotation of literary remains of greater or lesser age.

Similarly, Hellpach in 1919, contemptuously referred to the existing medical history as "pathophilology," and characterized it as much too interested in archival material to be of any use in giving medical students a cultural point of view.[97] Instead, he suggested that the student would be provided with a better cultural background if he were led to discover for himself such materials as the chapter on physicians in Theodor Gomperz's *Greek Thinkers*, Burckhardt's *Civilization of the Renaissance in Italy*, or Ricarda Huch's study of the Romantic Movement. The reference to Burckhardt is worth commenting on, for as early as 1870 he had written to a friend: "A rather remarkable phenomenon has become clear to me as a teacher of history, that is, the sudden devaluation of all mere 'events' of the past." [98] In the study of history, Burckhardt laid emphasis not on erudition and research but on interpretation of selected historical periods, and this point of view Hellpach wished to have applied to medical history.

And in 1921 Richard Koch attributed the wide gap that still existed between medicine and medical history to the spirit that had motivated the medical historians of the preceding generations.[99] Just as in the natural sciences, he pointed out, historical research attempted to arrive at historical truth by collecting *all* the facts so as to arrive at a picture of the past as complete as possible. As a result, the history of medicine became the domain

[96] M. Seiffert: Aufgabe und Stellung der Geschichte im medizinischen Unterricht, *Münchener medizinische Wochenschrift*, 1904, pp. 1159-1161.

[97] Willy Hellpach: *Die Neugestaltung des medizinischen Unterrichts*, Berlin, 1919, p. 59.

[98] Jacob Burckhardt: *Briefe zur Erkenntnis seiner geistigen Gestalt* Mit einem Lebensabriss herausgegeben von Fritz Kaphahn, Leipzig, Alfred Kröner Verlag, 1935, p. 337.

[99] R. Koch: Die Bedeutung der Geschichte der Medizin für den Arzt, *Fortschritte der Medizin* 38: 217-225, 1921.

of scholarly philologists, bibliographers, and lexicographers, such as Littré, Daremberg, Hirsch, Pagel, Sudhoff and many others. Yet with all their zeal and diligence the aim they set themselves was not achieved. What did happen was that enormous masses of facts were collected which are not yet synthesized or interpreted. It was a scientific labor of love performed by a small group, and for this reason could have little influence on medical education in general.

In 1918, Germany had collapsed, and yet, in the midst of chaos, there were soon signs of recovery. A reorganization of the educational system was undertaken as a part of the attempted restructuring of German society. The question of having medical history taught in the medical faculties was raised again in this connection.[100] The demand of the German Society for Medical History in 1913 that medical students be required to attend a course in the history of medicine had passed unnoticed. But now when preparations were being made to abolish all the old injustices and absurdities, it appeared urgent to demand that chairs for medical history be established in all the universities. Haberling pointed out that in seven Prussian universities there were no teachers for medical history, and in three there were only *dozenten* to offer the subject. In the non-Prussian schools, four had chairs for medical history while five did not. To support this demand, emphasis was placed on the usefulness of medical history.

A medical student wrote to the *Deutsche medizinische Wochenschrift* supporting this demand, and urged that the history of medicine be made a required subject in the final examination.[101]

Meyer-Steineg emphasized the need for instruction in the history of medicine on several grounds.[102] Gone was the unified structure that medicine had once been. Now it was simply a conglomeration of many specialties. Some element was needed to counterbalance this condition, and this element was history. Not only would it make possible for the student a synthesis of the various branches of medicine, but it would provide him also with a cultural point of view and thus strengthen the place of the humanities in medicine. Finally, said Meyer-Steineg, it would illuminate the social relations of the medical profession.

[100] W. Haberling: Zur Frage des Unterrichts in der Geschichte der Medizin an den Universitäten, *Deutsche medizinische Wochenschrift* 45: 1420-1421, 1919.

[101] Hubert Beisele: Die Frage des Geschichtsstudiums; Zu dem Artikel von Oberstabsarzt Haberling in Nr. 51, *Deutsche medizinische Wochenschrift* 46: 102, 1920.

[102] Theodor Meyer-Steineg: Geschichte der Medizin als Lehrgegenstand, *Berliner klinische Wochenschrift*, 1920, p. 158.

Pointing out that a good deal of the current discussion on the means whereby a broader cultural background could be provided for the medical student was too diffuse to be of value, Karl Sudhoff went on to analyze how this might be accomplished through the teaching of medical history.[103] On the basis of his long experience, he felt that students would most easily be introduced to such matters through a course resembling the old "Encyclopedia and Methodology of Medicine." The actual teaching of medical history Sudhoff wished to have at the end of the medical course, because the student would then be in a better position to appreciate the development of medical knowledge.

Despite the urging of these leading German medical historians, the medical faculties remained lukewarm to all proposals for the systematic teaching of medical history. In 1921, representatives of the faculties and of the medical societies presented to the German government a memorial in which the wish was expressed that in reorganizing the medical curriculum an opportunity be provided for the student to become acquainted with the history of medicine.[104]

The first World War had temporarily interrupted the renaissance of medical history that we previously noted as having begun at the turn of the century, but with the cessation of hostilities medico-historical activities increased both in Europe and America. An international society of the history of medicine was organized in 1921, and the American Association of the History of Medicine in 1924. International congresses were held at intervals. Evidence of this ongoing development is also to be found in the increased attention given to the teaching of the history of medicine.

Great Britain had had almost no provision for the teaching of medical history. The subject was ignored by all the universities, except Edinburgh, where John D. Comrie had held a part-time lectureship since the early part of the century. In 1919, Charles Singer urged that more attention be given to the teaching of medical history.[105] Two things, he maintained, were necessary to develop a "generalized interest in history and effective work along historical lines." The first of these was the establishment of

[103] Karl Sudhoff: Neuordnung des Studiums und medizingeschichtlicher Hochschulunterricht, *Jahreskurse für aerztliche Fortbildung* 11: 31-39, 1920; see also Paul Diepgen: Ueber Wert, Aufgabe und Methode des medizin-historischen Unterrichtes, *Fortschritte der Medizin* 37: 517-520, 1920.

[104] Vorschläge der Kommissionsberatung der Abgeordneten medizinischer deutscher Fakultäten und Vertreter des deutschen Aerztevereinsbundes zur Neuordnung des medizinischen Studiums und der Prüfungen, *Fortschritte der Medizin* 38: 26, 1921.

[105] Charles Singer: The Teaching of Medical History, *British Medical Journal*, 1919, pp. 141-142.

two or three chairs " to be held by men who would devote their lives to the task of setting forth the history of medicine as a continuous whole." The second need for an adequate study of medical history was the establishment of a special institute, preferably situated in London. The chief advantage to be derived from such a program was that the student in learning how medicine had come to be what it is, would also learn to see all the branches of medicine as parts of an organic unity. Finally, concluded Singer, " Those who are best acquainted with the work done in other countries for the history of medicine will have no doubts that the introduction into the country of a systematic treatment of the subject will do much to raise the educational standing and with it the self-respect, happiness and efficiency of the medical profession as a whole." Not long after, Charles Singer himself held positions, such as he had suggested, at Oxford and at University College in London.

At the same time medical history in Italy had an eloquent spokesman in Arturo Castiglioni. In word and in deed he demonstrated the significance of history in medical education, and insisted that a proper place be accorded to it in the curriculum.[106]

In 1922, Henry E. Sigerist, entering upon a brilliant career, devoted his inaugural lecture as *privat dozent* to a discussion of the tasks and the aims of medical history.[107] Surveying the events of the preceding fifty years, he showed that there was reason to be optimistic about the future of medical history. Sigerist felt that a major function of the history of medicine was to bridge the gap between the natural sciences and the humanities. In this way the medical student would be enabled to acquire a broad cultural background. The growing interest in medical history and its increasing significance in medical teaching were also emphasized in 1923 by Isidor Fischer of Vienna.[108]

At Leipzig, Karl Sudhoff was succeeded in 1925 by Henry Sigerist. Early in 1927, to determine the state of medico-historical instruction, Sigerist undertook a survey covering Europe and the New World.[109] The survey revealed that in six European countries (Bulgaria, Esthonia,

[106] A. Castiglioni: Sul riordinamente dell' insegnamento universitario della storia medicina, *Rivista di storia critica delle sciense mediche e naturali* 11: 97, 1920.

[107] Henry E. Sigerist: Aufgaben und Ziele der Medizingeschichte, *Schweizerische medizinische Wochenschrift*, 1922, pp. 318-322.

[108] I. Fischer: Der historische Fachunterricht, *Wiener klinische Wochenschrift* 36: 888-890, 1923.

[109] Henry E. Sigerist: Die Geschichte der Medizin im akademischen Unterricht. Ergebnisse einer Rundfrage des Institutes, *Kyklos*, Leipzig, 1928, vol. i, pp. 147-156.

Finland, Latvia, Sweden and Yugoslavia) there was no teaching of medical history. Poland had created institutes for the history and philosophy of medicine in its five universities. In addition, full professorships were reported as established in Athens, Baltimore, Copenhagen, Leipzig, Lisbon, Madrid, Montreal, Moscow, Paris, Toronto, Vienna and Würzburg. At Prague and Coimbra, the chair of medical history was combined with another subject. Institutes or seminars in medical history were noted in Athens, Baltimore, Cluj, Frankfurt a.M., Freiburg i. Br., Jena, Leipzig, Naples, Vienna and Würzburg. The history of medicine was reported to be a required subject in Greece, Poland and Rumania, as well as at the universities of Modena, Padua and Madrid. It was a required examination subject for the doctorate in medicine at the universities of Madrid, Modena, Greece, Poland and Rumania and was optional at the universities of Bari, Padua, and Naples.

An event of major importance for the teaching of medical history in the United States was the creation in 1929 of the Institute of the History of Medicine at The Johns Hopkins University. During the decade of the 'twenties interest in medical history had been growing. In 1920, Victor Robinson founded and edited *Medical Life*, at that time the only monthly magazine in English devoted to the history of medicine. The founding, a few years later, of the American Association of the History of Medicine has already been mentioned. By 1929, Garrison's *History of Medicine* had achieved its fourth edition. The teaching of medical history, however, continued on a desultory and sporadic basis. Some men followed the informal Osler tradition. For example, in 1921, Edward C. Streeter was appointed Lecturer on the History of Medicine at the Harvard Medical School. No formal lectures were given at the school, but according to Dr. Viets, "he gave a few discerning students delightful evenings at his home on Beacon Street. . . ."[110] Temple University in 1929, created a professorship of medical history for Victor Robinson. While a required course of lectures was given to freshmen, the position was unsalaried and not full-time, and there was no department. Again, at the University of Chicago Medical School, medical history was taught by the professor of anatomy.

Meanwhile, forces had been set in motion to create a powerful center for the study of medical history. In 1925, William H. Welch agreed to do something to advance the history of medicine in America. As he wrote to his niece, he felt that "The time is ripe and the opportunity

[110] Viets, *op. cit.*, p. 844.

splendid for getting the subject of medical history well established and properly recognized both on the research and the teaching sides in our medical schools. . . ." [111] Welch's interest in the history of medicine was of long standing, extending back to his student days; and this despite the fact that when he attended Heinrich Haeser's lectures at Breslau, he found them "deadly dull." In 1888, for instance, in a speech at Yale, he had advocated the study of medical history and deplored its neglect, on the ground that there is nothing "more liberalizing and conducive to medical culture than to follow the evolution of medical knowledge." [112] Throughout his career at Hopkins, Welch continued to manifest a keen interest in history.

In 1926, funds were secured for the endowment of a chair of medical history, and a decision was reached to establish a library. In November of that year Welch became professor of the history of medicine, but he was fully aware that more than just a professorship was needed. In 1927, he noted in his diary, "A mere 'Lehrstuhl' of medical history is like a chair of anatomy, physiology, pathology, etc., without laboratory, assistants, staff, and budget." The logical consequence had already been decided on earlier that year. "I want to get launched as soon as possible," he wrote, "a genuine Institute of Medical History connected with the professorship and the library—altogether a good-sized job." [113]

After a visit at Leipzig with Sudhoff and Sigerist, where he "obtained some idea of what a real Institute for the History of Medicine should be," and was confirmed in his belief that a mere professorship for medical history was inadequate, Welch set out on his travels through Europe as a book buyer. Finally, on October 17 and 18, 1929, the department of the history of medicine and the library were officially dedicated, with Harvey Cushing, Karl Sudhoff and Abraham Flexner as the principal speakers.

Cushing related the functions of the department and the library to the increasing specialization of medicine, pointing out that medical history had much of great value to give to the physician, but that it would also have to remain vigilant to avoid the creation of an ivory tower for another specialist.

> What possible relation . . . does this rapidly moving account of the cleavages in medicine, past and apparently on the way, have to the dedication of this library

[111] Simon Flexner and James Thomas Flexner: *William Henry Welch and the Heroic Age of American Medicine*, New York, Viking Press, 1941, pp. 418-419.
[112] *Ibid.* p. 421.
[113] *Ibid.*, p. 425.

and its inseparable association with the establishment of a chair of the History of Medicine? Will this foundation merely mean still another group of specialists having their own societies, organs of publication, separate places of meeting, separate congresses, national and international, and who will also incline to hold aloof from the army of doctors made and in the making? Without lessening the opportunity and encouragement for historical and bibliographical research, on the part of those rare and highly gifted persons capable of it, is there not something far more important for Medicine that can radiate from here?

In the modern development of the physician into a scientist, have we not lost something precious that may without risk of pedantry be brought back to medicine? [114]

Sudhoff reiterated this point, and went on to show that the study of history brings our own experience into organic relation with the past, and teaches us to see our own work in relation to the whole. It teaches the medical man to look beyond the horizon of his own special field of activity "into the great wide world of mental activity around and beyond him, to see into the neighboring regions of mental science, of psychology, general philosophy, sociology, and into the general cultural life, the art and literature, of his own time. The physician cannot stand alone within his scientific specialty: as a creature of his time, he must remain in close relation with the general culture of his time. . . . The growing tendency to specialization, unavoidable in itself, is inimical to true professional development. The necessary corrective of its dissolving, dissociating effect is the unifying rôle of history." [115]

The Institute of the History of Medicine was launched, but Welch was aware that he would not be able to carry the burden of this venture. As a result the Institute did not really get under way until after Henry Sigerist had taken over in 1932. Welch wrote that Sigerist's "coming to Johns Hopkins is one of the most important events in the history of the University for years." [116]

Henry Sigerist brought home to his American auditors the meaning and potentialities of scholarship in relation to medical history. But the potentialities that he sees in history involve an organic linking of the past, not alone with the present, but equally so with the future. He has

[114] Harvey Cushing: The Binding Influence of a Library on a Subdividing Profession, *Bull. Johns Hopkins Hosp.* 46: 38, 1930.

[115] Karl Sudhoff: Address Delivered at the Inauguration of the Department of the History of Medicine at The Johns Hopkins University, Baltimore, October 18, 1929, *Bull. John Hopkins Hosp.* 46: 101-116, 1930.

[116] Flexner and Flexner, *op. cit.*, p. 443. See Henry E. Sigerist Valedictory Number, *Bull. Hist. of Med.*, Jan.-Feb., 1948.

added to the other values of medical history that of promoting a sociological comprehension of medicine. Or, stated differently, a medical history which approaches medicine with an understanding that it has always been involved in a matrix that is at once social, economic, political and cultural can be developed into a method that can contribute to the solution of urgent social problems of medicine.

My task has been to trace the historical evolution of the place of history in medical education; and the story of this development may be brought to a fitting close by glancing briefly at the situation in American medical schools shortly before the recent war. In 1937, Sigerist undertook to survey the status of medical history as a subject of instruction.[117] The results revealed that 54 of the 77 medical schools surveyed, or 7 percent, provided instruction of some kind. The courses were required in 28 schools, and in 22 of these there was a required examination in the subject, in six schools the final examination was optional. The courses in all the other schools were elective.

When compared with Cordell's survey of 1904, the results obtained by Sigerist showed that there had been a very considerable increase in interest in medical history, and that the majority of medical schools recognized that the subject had a place in the curriculum. Nevertheless, while the quantitative aspect of the survey was impressive, the qualitative aspect was much less so. Except at one school, history was taught by part-time instructors, that is, faculty members who happened to be interested in the subject, but whose main work was in some other branch of medicine. From the reported data it is clear that many of the courses were of inferior quality. Yet, taken as a whole, there is no doubt that progress had been made.

The coming of the recent war indubitably exerted a negative influence on the progress of medical history. Nevertheless, one significant positive achievement deserves mention, the creation of a full chair of the history of medicine at the University of Wisconsin, and the appointment to it of Erwin H. Ackerknecht. Much, however, still remains to be done to assure for the history of medicine a place in the scheme of medical education which accords with its intrinsic significance. Plans have recently been proposed for the creation of new centers of medical education, as well as for expansion of certain existing centers. It is noteworthy that at least one of these plans, that of the New York University Medical School,

[117] Henry E. Sigerist: Medical History in the Medical Schools of the United States, *Bull. Hist. Med.* 7: 627-662, 1939.

envisages a Department of Medical Humanities which would include the history of medicine. On the other hand, it is equally interesting that the proposed plan for the educational expansion of the Columbia-Presbyterian Medical Center contains no reference whatever to the subject of medical history.

What is the place of history in medical education? In our endeavor to answer this question, we have called on the past to shed light on the present and possibly to dispel a few of the shades that shroud the future. In view of the evidence presented to say that history has had a place in medical education for the past two and a half centuries is to be both correct and trite. Once said, this seems so obvious as to be embarrassing. Rather the problem is to indicate what that place is in the scheme of medical education. What are its significant characteristics? How does it articulate with the other elements of a medical education?

I shall not examine these questions. My task has been to show, what has been achieved so far, and where we stand at present, thus providing a point of departure for discussion of what the next tasks will be. I shall conclude, however, by summarizing what I conceive to be the advantages of medical history for practitioners and students of medicine.

We are aware that medicine involves the study and application of biological knowledge, and that this activity is linked in various ways with social, economic, political and ideological factors. In relation to the technical content of medicine, history shows this knowledge in proper perspective. It points up the way in which knowledge has evolved, and indicates how inquiry can be made to go forward into the unknown. Furthermore, the student of medical history soon discovers that the state of knowledge in one branch of medicine is of significance in understanding apparently unconnected developments in other branches. When properly presented, medical history counterbalances the divisive effects of specialization, and helps the medical man to synthesize for himself an organic conception of medicine.

But medicine is also a social activity. The student should acquire an understanding of the place of the medical profession in society. History as a social science facilitates this, and makes it possible for the student to understand the position of medicine in our complex social structure, and how the present has evolved from the past. Moreover, the health of our people is our most precious national asset. We are aware that the responsibilities of the physician today are more extensive than ever before. In the complex business of living, both theory and practice are necessary

conditions of survival, and to both the history of medicine can make important contributions. In the words of the British historian, F. W. Maitland, "Today we study the day before yesterday, in order that yesterday may not paralyse today, and today may not paralyse tomorrow."

PARTIAL ABSTRACT OF DISCUSSION

MAURICE S. JACOBS, Philadelphia: Various questions arise in discussing Dr. Rosen's masterful analysis of the subject "The Role of History in Medical Education." One occasionally hears different opinions as to the reasons for teaching medical history: the best time—(whether freshman, sophomore or even a later year); whether it should be by subject or in a definitive course; whether it should be restricted to the narrow confines of medicine alone or should include its relation to the social sciences in general. To some, medical history is only a "discipline of the mind," while to others it is a recognized and essential part of a broad and well-rounded medical education.

This discussor was at the University of Pennsylvania at a time when no formal courses in medical history were given, though this had been done years previously and for a time subsequently. Perhaps this lack of a formal training was the stimulus for his interest in the subject. At any rate it has led to the development of a project of teaching medical history during the current semester under the auspices of the Section on Medical History of the College of Physicians. This course will be open to all medical students in Philadelphia.

It would appear that the desire to acquire a knowledge of medical history need not be predicated upon a previous course in the subject but is probably innate in the individual. However, one final thought may be stressed, viz., that any course, for its success, will probably depend upon the enthusiasm and zest which the instructor puts into it. There should not be a mere compilation of facts. This might have a deadly influence. Upon the genius of the instructor to make the "dead" history live will depend the interest of the student and the "life" of the course.

ERWIN H. ACKERKNECHT, Madison, Wis.: I am teaching medical history, not to give to my students the general culture that they should have obtained in high school and college, not to make them medical historians either, but because I am firmly convinced that I can contribute to making them better doctors. I have given some of the reasons for such a belief in an article published in the *Bulletin*. I could give many more. I would like to emphasize here only two points: that a study of the history of therapeutics provides the student with the necessary poise toward fashions in therapeutics, and that a study of the history of public health shows that much can be accomplished even with insufficient theories when there is a will to do something. The value of medical history in preparing the student for the art aspects of his calling cannot be over-estimated. Medical history is one of the few counterweights for 20 years of dehumanizing education, and for an approach

that makes the student look at man as if he were nothing but an animal. A minor role of my teaching is to provide the student with at least as much knowledge of medical history as an intelligent consumer of Readers Digest has. It is embarrassing to see laymen more conversant with the subject than doctors.

The question how to bring medical history to the student, seems to be by no means such a mystery as is often claimed. Under present conditions there seems to be no other way for most schools than to hire a full-time teacher in medical history and to make at least one fundamental course required. Of course, a few selected men will always turn to medical history, no matter whether it is taught at all or how it is taught. But if we regard the subject as a really important one, we cannot leave matters to accident. Just as in other important matters we do not leave the decision of what to study to the student's predilection.

Very often the so-called "Oslerian method" is recommended as an alternative to full-time teachers and full-fledged courses. The Oslerian method (the integration of medico-historical matters in the ordinary medical courses) is an excellent method. But I am afraid that its advertising sometimes serves now as a pretext to evade the teaching of medical history altogether. We all know that most of the younger men cannot practice it. And even if practiced, it doesn't replace a survey course in medical history. It does not contain one of the main virtues of medical history—overcoming the specialization and atomization of medicine, and giving a total picture of the subject.

Of course there are various economical reasons that fight against the method recommended by me. In these cases I feel the only solution is the use of "feldschers" in medical history. That is, we will have to give to such interested younger men that otherwise turn to a full-time career in the teaching of anatomy, physiology, medicine, preventive medicine, etc. at least a sufficient special education in medical history that enables them to give at least a good survey course in such schools that cannot afford full-time teachers in medical history. This system has actually been practiced in many places for a long time. But if we decided to continue it, we should approach it in a more systematic way.

Summary

Owsei Temkin, Baltimore, Md.: If I understand my function rightly, I should now summarize our agreements and disagreements, state the result of our discussion, and the direction it points to.

On one point opinion was uniform, namely that the study of medical history *is* of value to medical education. The various aspects which make it valuable have been brought out in Dr. Rosen's paper and by the various speakers, and it would be repetitious to state them again. This unanimity of aim stands in contrast to a great variety of opinions regarding when and where and by whom and in what form medical history should be taught. Let us admit quite frankly that on this point we have not agreed. The establishment of full-time instructors in medical history has been advocated by some, a preference for casual teaching within other courses has been favored by others, and a possible compatibility of both has been suggested. The premedical curriculum, the first medical year, as well as later phases—all found their advocates as proper levels of instruction.

The discussion has brought out many things that *should* be done, and it is not my task to add to them my own preferences. However, it seems that one important party in this discussion has not been heard, namely the medical student himself. Perhaps I can substitute for his answer by referring to the experience which we have had at The Johns Hopkins Institute of the History of Medicine. Since all the courses have been optional, the students' response may be taken as some measure of their interest. Broadly speaking, the teaching was marked by two points: at the one end a formal outline course in the history of medicine, chiefly for first-year medical students, at the other end courses in which historical methods were applied to present-day medicine. The students showed a great interest in both, and the formal outline course has established itself as a tradition. In between these two points a variety of courses were offered dealing with American medicine, history of philosophy, special periods, surgery, psychiatry, or other specialities, etc. One of the main functions of these miscellaneous courses was to acquaint the student with the rudiments of historical method and to make it clear to him that the history of medicine also has its progress, e. g. that a textbook written forty years ago may no longer be reliable. Experience has proved that the interests of succeeding generations of medical students are unpredictable. Besides, not every subject could be equally well presented. The history of surgery during the last fifty years probably can be imparted better by a surgeon historically interested than by a professional medical historian not intimately acquainted with details of surgical technique. This brings to my mind an experience of my own student days. My professor of anatomy, commenting upon complaints that too much anatomical knowledge was required in the examinations, said: "You don't have to know much, and you don't have to know little. You have to know everything." In the field of medical history such a demand is impossible since it would mean a knowledge of everything ever thought or done in medicine from prehistoric days to 1948. And since no one person can know all this there is place for full-time teachers in formal courses as well as instruction by representatives of the various specialties.

Since we all agree on the value of teaching medical history, but do not agree on the ways and means, the following inferences can be drawn from our discussion. At the present moment the time has not yet come to formulate a detailed program that should be valid everywhere. Instead, each of us should further the teaching of medical history in the way that seems best to him. It is necessary above all that this take an active form which will lead to definite and appreciable results.

THE EPIMONIDION PHARMACON OF PHILON THE BYZANTINE, "THE HUNGER AND THIRST CHECKING PILL" AND OTHER EMERGENCY FOODS

PAN S. CODELLAS

The Greek term "Poliorcetica" connotes things relating to a siege. This branch of military science obviously was an important one and various ancient writers occupied themselves with the subject. In 1693 Thévenot, upon the order of Louis XIV, king of France, brought out his edition of the *Mathematici Veteres*.[1] This edition incorporated the treatises on "Poliorcetica," among them the so-called fifth book of Philon of Byzantium. Although Thévenot thereby increased the wealth of first editions and enriched military literature, his editio princeps was based on a single Paris manuscript.[2] Nearly 200 years later, in 1867, Wescher published his *Poliorcétique des Grecs* after a complete survey of the European libraries.[3] By now, the Greek philosophers, mathematicians, mechanicians and tacticians had aroused the interest of philologists, historians and specialists in this auxiliary branch of the science of war. The excerpts of the writings of Philon the Byzantine were organized and edited by Richard Schoene in 1893.[4] Schoene's collection rests upon the collation of manuscripts of Bologna,[5] Paris,[6] the Vatican and the Escorial[7] and the writings of several investigators. Schoene left valuable material and an excellent text of the so-called fourth and fifth books of Philon of Byzantium. The text of these excerpts was used by Diels and Schramm in their edition as Diels acknowledges in the "Vorwort."[8]

[1] *Veterum mathematicorum editio Thévenotiana*, Parisiis, 1693.

[2] Codex Parisinus graecus 2442 olim Medicaeus nunc Parisinus.

[3] C. Wescher, *Poliorcétique des Grecs*, Paris, 1867.

[4] Richardus Schoene, *Philonis mechanicae syntaxis*, libri quartus et quintus, Berlin, 1893.

[5] Codex Bononiensis Sancti Salvatoris 587.

[6] See above, footnote 2.

[7] Codex Escorialensis Y III, 11.

[8] Excerpte aus Philons Mechanik B. VII und VIII (vulgo fünftes Buch), Griechisch und Deutsch von H. Diels und E. Schramm, in: *Abhandlungen der Preussischen Akademie der Wissenschaften*, Jahrgang 1919, Philosophisch-historische Klasse, Nr. 12, Berlin, 1920.

However, after a thoughtful investigation, these authors were led to the conclusion (which we accept) that the so-called fifth book of Philon really had formed books seven and eight of his " Treatise on Mechanics."

The purpose of the present paper is to draw attention to the problem of food as it presented itself in military campaigns, sieges and famines. As a source we have used the excerpts from Philon in the edition of Diels and Schramm,[9] at the same time giving consideration to the older editions too.

Philon of Byzantium was a celebrated mechanician and a contemporary of Ctesibius. But the life-time of these two men as well as that of the famous Heron of Alexandria, whom some scholars have believed a pupil of Ctesibius, presents some chronological difficulties. Fabricius [10] places Philon A. U. C. 601, viz, 153 B. C. " which is sufficiently correct." [11] The biographers of Philon in Pauly-Wissowa's *Real-Encyclopädie*, on the other hand, give his date as " at the end of the third century B. C."[12] Philon's work on mechanics was divided into nine books and covered a wide range: harbors, levers and other mechanical forces, besieging and defending cities, secret correspondence, preparedness and other subjects. Book eight contained the so-called " Poliorcetica " and here Philon discusses towers, forts, store-houses, foods and the kinds of fruit to serve during a siege.

In the following we are chiefly concerned with Philon's remarks on the preservation of food, its storage, and, above all, the preparation of emergency food as advised for the population in general and the armed forces in particular. " It is right," Philon says, " to store away at the public expense as well as in private houses . . . other things that do not rot, such as barley, wheat on the stalks, chick-peas, lupines, hippace (a kind of pulse), bitter vetch, sesame and opium poppy for the compounding of the medicaments, furthermore millet and, in addition, bread made of dates. The well-to-do citizens should have meat which is dried or placed in wine sediment, while other meat may be salted. For such meat in proportion to its nutritional value will lend considerable strength, also it will be quite sufficient without requiring further seasoning or salt. . . ." [13]

[9] See preceding footnote.

[10] I. A. Fabricius, *Bibliotheca Graeca*, vol. IV, Hamburgi, 1795, p. 231.

[11] W. Smith [ed.], *Dictionary of Greek and Roman antiquities*, vol. 3, London, 1861, p. 307.

[12] Pauly-Wissowa, *Real-Encyclopädie der classischen Altertumswissenschaft*, 39. Halbband, Stuttgart, 1941, Cols. 53.

[13] Diels and Schramm, *op. cit.*, p. 40.

Of special interest is Philon's advice to store squills and bulbous plants and also to plant them in the city and around the fortifications for the preparation of the "Epimonidion Pharmacon" to protect the citizens during a scarcity of food. This medicament is composed as follows: "Take squill which, after having been boiled down, is washed in water, dried and cut into the thinnest possible pieces. Afterwards it is mixed with one-fifth of sesame and one-fifteenth of opium poppy (*Papaver somniferum*). When all these have been pounded together in a mortar to a fine mass, knead it with the honey and divide it into pieces as big as the largest olives. If one of these morsels is consumed around the second hour (about 8 a. m.) and another around the tenth hour (4 p. m.) no serious suffering will result from want of food." Then the text continues: "There is another somewhat similar pharmacon which should be compounded in this manner: take half an Attic hecteus (4.32 liter according to Diels and Schramm) of sesame, half a choos (1.62 l) of honey, one cotyle (0.27 l) of oil and one choinix (1.08 l) of sweet almonds shelled and skinned. Having roasted the sesame and the almonds, grind them and shake them to and fro. Then peel the squills, cut away their roots and leaves, divide them into small pieces, put them into a mortar and grind them as fine as possible. After these manipulations rub evenly the honey with an equal quantity of the ground squills together with the oil; pour the mixture into an earthen pot and put it upon a charcoal fire to cook. When it starts boiling, add some of the sesame and almonds, at the same time stirring with a piece of wood until all of them have been put in. When it has become very firm, take it away and divide it into small pieces and whoever consumes one in the morning and one in the evening will have sufficient food. This pharmacon happens to be good for the armies, too, for it is pleasant, filling and does not cause thirst." [14]

The question here arises as to the proper name of the pharmacon. Barocius, in the sixteenth century, had "Epimenideion Pharmacon" [15] and this reading has also been adopted by Diels and Schramm [16] who derive this term from the name of the ancient Cretan philosopher Epimenides on the authority of Theophrastus who mentions ". . . of scilla the so-called Epimenideios that has the name from its use." [17] "Use"

[14] *Ibidem*, pp. 46-47.

[15] *Heronis mechanici liber de machinis bellicis . . . a Francisco Barocio . . . latinitate donati, Venetiis*, 1572 (Quoted by Wescher, *op. cit.*, p. xxix).

[16] Diels and Schramm, *op. cit.*, p. 46.

[17] Theophrastus, *Enquiry into plants*, with an English translation by Sir Arthur Hort, vol. 2, p. 124 (The Loeb Classical Library).

here stands without explicit reference to magic, the eponym may or may not imply any specific action. However, the history of a term indicates the differences of conception, meaning, spirit and use. According to Pliny, "Pythagoras says that a squill, suspended at the threshold of the door, effectually shuts all access to evil spells and incantations." [18] And Theocritus is understood to have stated "that the squill effectually protects statues and tombs from outrages being commited upon them; and it was customary to plant them about the graves, . . ." [19] Theophrastus likewise writes that squills were employed as charms.[20] There is thus no doubt that squills had a magic connotation and that the name of Epimenideios for certain kinds of squills may be connected with it. In giving, nevertheless, preference to the name of "Epimonidion Pharmacon" I have followed Wescher who based this reading on the authority of the Codex Bononiensis and connected it with the Greek verb *ἐπιμένω*.[21]

After the two detailed prescriptions for the preparation of Epimonidia Pharmaca, Philon mentions other preparations of emergency foods: a) "Food is also composed from mallow and the fruit of scilla, . . . and by giving pieces equal to the above mentioned sufficient food is supplied to the besieged people." This prescription lacks the precise details of the previous preparations and is probably meant for the use of general and unorganized groups. b) Squills boiled and prepared in the same way as bulbs, etc. or c) Squills mixed with pulse flour, wine (about 3 cotyles) and honey until the mixture has the consistency of Kykeon (a thick barley water). From this concoction which is said to offer plenty of food, d) a bread may be made. Furthermore, Philon describes e) another mixture with figs and raisins as main ingredients. He also recommends f) meat well boiled until it becomes very soft, when it is to be mixed with butter and honey, and g) wild oats roasted in moderately hot ashes in a pot rubbed with oil. In addition he advocates what during the last war were called Victory Gardens with fig and palm trees if the climate is suitable, and Hindu and Greek squash, lettuce, cabbage and other vegetables.[22]

[18] *The natural history of Pliny*, translated etc., by J. Bostock and H. T. Riley, vol. IV, London, 1890, p. 243.

[19] *Ibid.*, footnote 5.

[20] Theophrastus, *op. cit.*, p. 128.

[21] Wescher, *op. cit.*, p. 277; cf. also *ibid.*, p. 203 where Wescher attributes to Heron a passage recommending "the so-called Epimonidia pharmaca which satisfy in very small quantity and keep free from thirst."

[22] Diels and Schramm, *op. cit.*, pp. 47-49.

Sesame, one of the ingredients of the Epimonidia Pharmaca, has been used by man for thousands of years. Galen, in speaking of the medicinal uses of the seeds and oil of sesame writes: "The seed of the sesame contains oil; therefore if stored, oily drippings appear very quickly." His following remark approaches the point of the present discussion. "That is the reason that causes those who eat it to be satiated quickly.... It is, however, not eaten alone but with despumated honey formed into what the populace calls *sesamides*." [23] Sesame is used in the present day for making cookies or cakes, and the seeds, because of the pleasant taste, are sprinkled over bread before it is put into the oven. The sesamides of Galen today are called *pastelia*. The chemical analysis of sesame gives approximately: water 5.5%, protein 20.3%, oil 45.6%, non-nitrogenous material 15.0%, cellulose 7.15%, ash 6.5%.

From a nutritional and utilitarian point of view the principal ingredients of this emergency food merit respect: honey for its carbohydrate service, protein as supplying the nitrogen need of the body, scilla as a general and cardiac stimulant, and opium as deadening the hunger pains of the stomach. Caloric values are taken care of by the oil and the carbohydrates. The Epimonidion Pharmacon appears to have been a suitable preparation to serve the circumstances and the times. It will not be too rash to baptise this emergency food the "K" ration of the ancient Greek peoples. Moreover, from the relatively large number of existing manuscripts and the late epoch (16th century) when they were copied, it may be assumed that the Epimonidion Pharmacon had shown good results and enjoyed a fine reputation during the infancy of chemistry and the art of nutrition, the pre-gunpowder days.[24]

[23] Galen, *Opera omnia*, ed. Kühn, vol. VI, Lipsiae, 1823, pp. 547-548; see also vols. XIII, p. 111 and XII, pp. 120 f.

[24] I wish to express my thanks and obligation to Professor Temkin for his sincere and kind interest. His repeated suggestions have made it possible to bring out this paper in becoming dress.

MEDICAL MEN: CANONIZED SAINTS

WILLIAM A. FITZGERALD

That there are many more physicians and surgeons who have been declared saints than those I shall enumerate I have no doubt. This informal presentation makes no attempt to be definitive nor is it the result of a life work. Rather, it is based on a search during the past year which was limited, chiefly, to Butler's *Lives of the Saints* with an occasional reference to the *Acta Sanctorum* of the Bollandists. The search grew out of the desire to find prominent Christian physicians notable in the past for their sanctity, unusual goodness, heroic virtues. The thought had been to memoralize in glass in the windows of the chapel or of the library of the St. Louis University School of Medicine any great Christians connected with medicine.

In this brief search I have found only thirty-one saints who at some time or other followed the distinguished calling. Perhaps you will know of some I've overlooked—if so, please let me know so that to our list may be appended many more! Of these thirty-one some entered the profession for humanitarian reasons, some from the love of the science itself even one because of the material advantages. The list includes "the moneyless ones," lay persons, monks, a few priests, several bishops and one Pope. All of these are venerated in the Church, each with his own feast day.

At the head of the list are those four saints who are universally known and honored as patrons of the medical profession: Luke, Cosmas and Damian, Pantaleon.

St. Luke

Feast: October 18 (1st century)

St. Luke was a Greek, a native of Antioch, who practiced medicine until the end of his life. It has been difficult to ascertain where or what he studied formally, although statements have been made that he matriculated at Tarsus and at Alexandria. Grotius suggests that he may have been a servant-physician in some patrician family. Others view him as a ship doctor.

We know that St. Luke was a disciple of St. Paul who speaks of him as "the most dear physician," and that he visited St. Paul frequently during his imprisonment at Caesarea, went to Rome and remained with him during his two year imprisonment there; and was alone with him at the time of his last imprisonment. (II Timothy 4.)

St. Luke wrote his Gospel, which is the longest and finest from literary standpoints, before the year 63 and he then wrote his Acts of the Apostles. St. Luke is said to have written nothing but what he was told by persons present at and concerned in the things which he recorded. The phraseology definitely shows that he was a physician, as Harnack proved.

St. Luke is reputed to have been a painter and the Catholic Encyclopedia carries a picture of him painting the Virgin although many of the pictures attributed to him have been traced to the Byzantines of the sixth century.

He was not married and St. Epiphanius says that after St. Paul's death he preached in Italy, Gaul, Dalmatia and Macedonia. The place of his death has been disputed, one authority saying that he died in Bithynia and another that he died at Thebes. The Roman Martyrology puts Luke's death in Bithynia and states that his relics are at Padua in St. Justina's church. He died A. D. 74, aged 84.

He is known as the patron of physicians, artists, brewers, glass-workers, butchers and notaries. In art he is pictured usually with one or more of the following: a book, ox, or brush and palet.

SS. Cosmas and Damian

Feast: September 27 (3rd century)

These were twin brothers, born in Arabia, about whose early life little is actually known. We are told that they studied in Syria and practiced medicine very successfully in Aegea in Cilicia. They belonged to the "moneyless ones" and were remarkable for using every opportunity which their profession afforded to propagate the Christian faith.

It is not surprising that when the Diocletian persecution started Lysias, the Prefect, should seize these well-known and respected Christians and order them to recant. They remained steadfast through various tortures and were finally beheaded along with their brothers Anthimus, Leontius and Euprepius, about the year 287.

Many miracles have been attributed to SS. Cosmas and Damian. Justinian I believed they were responsible for his recovery from a serious illness and out of gratitude rebuilt and adorned in their honor the church in Constantinople supposedly first erected by Theodosius II.

Fra Angelico has left us three paintings (Gallery of Ancient and Modern Art, Florence) depicting scenes from their lives.

Their relics and those of their brothers were eventually taken to Rome where they are venerated in their basilica.

SS. Cosmas and Damian are the patrons of physicians, surgeons, druggists and barbers and are usually pictured with a phial.

St. Pantaleon

Feast: July 27 (c. 4th century)

According to legend St. Pantaleon was the son of Eustorgius of Nicomedia, a pagan, and the Christian Eubula. His mother is said to have educated him in her Faith. He studied medicine and became physician to the Emperor Galerius Maximian at Nicomedia where he was in excellent repute. In 303 some of his fellow-physicians denounced him as a Christian. He was arrested, tortured and subsequently beheaded and blood from the severed head was caught and preserved in phials. These relics of his blood are kept at Constantinople, Madrid and Ravello and are said to liquefy on his feast-day and when in the presence of the True Cross or near the Blessed Sacrament. Cardinal Newman described the phenomenon in a letter to Henry Wilberforce from Naples dated August, 1846. Captain Ian Grant also describes it in his *The Testimony of Blood* (1929) pp. 17-44.

That the story of St. Pantaleon was in early circulation is proved by the translation, dated the sixth century, of his story into Syriac the manuscript of which is in the British Museum. But the Syrians wanted a Pantaleon of their own so they created a fictitious character known as Asia (meaning physician) and bestowed on him many of the features of St. Pantaleon's legend.

St. Pantaleon is one of the Fourteen Holy Helpers and as such is invoked against consumption. His head is preserved at Lyons and other relics are at the Abbey of St. Denys near Paris. He is the patron of physicians and of mid-wives.

St. Ursicinus

Feast: June 16 (1st century)

St. Ursicinus was a physician at Ravenna in Italy. He was converted to Christianity and died for his faith about the year 67.

St. Alexander

Feast: June 2 (2nd century)

St. Alexander was a Phrygian physician who lived in Gaul and was known as a zealous Christian. During the persecution under Marcus Aurelius in the year 177a great many Christians were seized at Lyons and Vienne and brought before the magistrate. During their trial St.

Alexander openly encouraged the prisoners and he too was seized. He died after being subjected to all the torments then used in the ampitheatre.

St. Antiochus

Feast: December 13 (2nd century)

Not much is known of St. Antiochus beyond the fact that he was a Sardinian physician who was martyred during the persecution of Hadrian about the year 110. The place of his martyrdom is known as the " Isola di Sant Antiocco " and has become a popular pilgrimage spot.

St. Antiochus

Feast: July 11 (3rd century)

St. Antiochus was a Christian physician of Sebaste in Armenia, the brother of St. Plato, he was decapitated for his religion during the governorship of Hadrian toward the end of the third century.

St. Codratus

Feast: March 10 (3rd century)

The Greek Acts tell us that the parents of St. Codratus were Greek Christians of Corinth. During the persecution of Decius his mother fled to the wilderness and there St. Codratus was born. Later he came out of the wilderness and studied medicine. In the year 258 St. Codratus was arrested during the Christian persecution by Jason the Prefect of Greece. After being thrown to the wild beasts he, and his five companions, Paul, Crescens, Anectus, Dionysius and Cyprian were finally beheaded.

St. Valentine

Feast: February 14 (3rd century)

The fact that there are at least three different saints named Valentine whose feasts are celebrated on February 14 has led to a great deal of confusion. However, as far as we can ascertain there was one, a priest and physician, who was apprehended with his deacon while assisting the martyrs during the persecution under Claudius II. After being severely beaten with clubs they were beheaded about the year 269 and buried in the cemetery named for him on the Via Flaminia. It is said that during the Crusades the knights on their way to the East stopped at the cemetery and placed little marble hearts colored red on the various tombs and that some of these hearts may still be seen.

St. Thalalaeus

Feast: May 20 (3rd century)

St. Thalalaeus was another of the "moneyless ones." He was a native of Lebanon who practiced medicine at Anazarbus until the Christian persecution under Emperor Numerian. Although he fled the city he was arrested, taken to Agegae in Cilicia and there beheaded about the year 284.

St. Cyrus

Feast: January 31 (4th century)

Cyrus also is a member of that group of physicians especially honored among the Greeks as "moneyless ones" or physicians who took no fees. He was a practicing physician of Alexandria who converted many of his patients to Christianity. He and an Arabian friend named John (about whom we have no further information) having heard that Athanasia and her three daughters were being persecuted for their Faith in Canopus, Egypt, took themselves there to encourage the four ladies. Cyrus and John were arrested and cruelly beaten. Later, in the presence of Athanasia and her daughters their sides were burnt with torches and salt and vinegar were poured into their wounds. Eventually the four ladies were beheaded and a few days later Cyrus and John suffered the same fate in the year 303.

St. Zenobius

Feast: October 29 (4th century)

St. Zenobius was a pious and skilful physician of Sidon who was arrested at Tyre with St. Tyrannio. Both of them were taken to Antioch where they were martyred in 310. Eusebius gives a very moving account of these martyrs and praises their steadfastness. St. Zenobius was racked and his sides torn with iron hooks until he died.

St. Blaise

Feast: February 3 (4th century)

Much of the information regarding St. Blaise is legendary. He is said to have been born of wealthy, Christian parents and to have been made Bishop of Sebaste, Armenia, while still quite young. He is reputed to have been a physician and to have effected many cures especially of diseases of

the throat. He is one the "Fourteen Holy Helpers" and, as such, is invoked against throat ailments.

During the persecution of the Christians by Licinius St. Blaise was taken prisoner, his body torn with iron combs, and then beheaded about the year 316. In art St. Blaise is usually represented with a crozier in one hand and two burning candles in the other; or holding combs such as those used in combing wool.

St. Caesarius of Nazianzus

Feast: February 25 **(4th century)**

Caesarius was the son of St. Nonna and St. Gregory Nazianzen the Elder, Bishop of Nazianzus, and brother of St. Gregory Nazianzen the Divine and St. Gorgonia. He was born about 330 at Arianzus near Nazianzus. Later he studied at the celebrated schools of Alexandria where his favorite subjects were oratory, philosophy and especially medicine in which he led his fellow-students. In 355 he began practicing in Constantinople where he acquired a considerable reputation for medical skill. His brother Gregory, fearing the bad example of the pagan court, persuaded him to return to Nazianzus in 358. He did not remain there very long, however, for shortly after he was appointed physician to the court of Constantius in Constantinople. He later became first physician at the court of Julian the Apostate where every effort was made to have him abjure his faith. He remained firm and finally resigned his post at court. After the death of Julian he returned to Constantinople where Jovian restored him to his former position and the Emperor Valens promoted him to the questorship of Bithynia. In 368, after narrowly escaping death in an earthquake at Nicea he decided to renounce the world, but before he could do so he was taken ill and died in 368. His brother Gregory pronounced the funeral oration and it is because of this panegyric that he is included in the Roman Martyrology. St. Caesarius was not married and at his death directed that all his possessions be distributed among the poor.

St. Juvenal

Feast: May 3 **(4th century)**

St. Juvenal, priest and physician, came from the East to Narni. What part of the East he came from and why is not stated in the biography compiled by the Bollandists. We are told, however, that Pope Damasus under pressure from the people of Narni made Narni into a separate

diocese and consecrated St. Juvenal bishop. After ruling for seven years St. Juvenal died in the year 376. His body rests in Narni whose chief patron he is and whose cathedral is named for him.

St. Diomedes

Feast: August 16 (4th century)

St. Diomedes was a physician, a native of Tarsus who was arrested in Nicaea in Bithynia and martyred for his faith by Diocletian about the year 300.

St. Domninus

Feast: November 5 (4th century)

St. Domninus was a physician who was condemned under Maximian Daza (310) to work in the mines. He was later burned to death in Palestine.

St. Aemilian

Feast: December 6 (5th century)

St. Aemilian was an African physician who was flayed alive for his Faith during the Arian persecutions of King Hunneric in 484.

St. Sampson

Feast: June 27 (5th century)

A rich physician, as well as a priest, St. Sampson during his life was called "the Hospitable" and "Father of the Poor." At his own expense he founded a great hospital at Constantinople where he, himself, took care of the sick poor. His hospital later burnt to the ground and was restored by the Emperor Justinian. St. Sampson died about the year 500.

St. William Firmatus

Feast: April 24 (11th century)

A citizen of Tours St. William Firmatus was a soldier before taking up the study of medicine which he undertook for avaricious reasons! A dream of the devil sitting on a money chest caused him to give up the profession for a life of retirement and seclusion. He made two pilgrimages to Jerusalem returning after each one to retirement in Brittany, where he was renowned for his piety and miracles. He is reputed to have had great power over animals and birds and to have used this power to protect the gardens and fields of the farmers. He died about 1090.

Blessed Victor III, Pope

Feast: September 16 (11th century)

Dauferius was the secular name of our only Saint-Pope-Physician. He was born about 1027 to the Lombard family of the dukes of Benevento. At the age of twenty he decided to renounce the world and fled from his friends and family to become a hermit. His relatives, of course, discovered his hiding place and forced him to return home. After some months and much pleading on the part of Dauferius he was allowed to take up residence in the abbey of St. Sophia at Benevento, where he was given the name Desiderius.

The next few years of his life were most interesting. For one thing, he studied medicine at Salerno and there made the acquaintance of Constantinus Africanus, the best known physician of his time, who spent the last twenty years of his life at Monte Cassino and died the same year as Blessed Victor. Desiderius also visited Rome and was favorably received by Pope Victor II. And he joined the Benedictine community at Monte Cassino of which he later became Abbot.

Pope Gregory VII had made much use of Desiderius' tact and diplomacy and on his death-bed chose him as a possible successor. He was so elected by popular acclamation in May, 1086, and took the name Victor. His reign lasted only four months and he died in the chapter-house on September 16, 1087.

St. Hildegard

Feast: September 17 (12th century)

St. Hildegard was born in 1098 at Bockelheim of wealthy and religious parents. At the age of fifteen she joined a Benedictine community and, although troubled all her life by ill health, she managed to make many journeys and to found numerous houses under the Rule of St. Benedict. Although there is no evidence of any formal medical training she is considered a most important medical writer of her day. She wrote two books on medicine, *Liber Compositae Medicinae* and *Liber Simplicis Medicinae*, which show her to be far ahead of her time. She also composed many hymns and allegorical homilies. Her correspondence with many of the famous men of the time was voluminous and in her spare time she made up a sort of Esperanto. Worn out by her activities she died in 1179. She is listed in the Roman Martyrology and several German dioceses observe her feast day.

Blessed Giles of Portugal

Feast: May 14 (13th century)

Giles, or Egidius, was the third son of Rodrigues de Vagliaditos, governor of Coimbra and trusted counsellor of Sancho the Great, King of Portugal. Following the custom of that day Giles was intended for the Church and was sent to study at the University of Coimbra where his outstanding qualities attracted much attention. Natural science, however, had more appeal for him than theology and he determined to go to the University of Paris to qualify for a doctorate in medicine. There are several stories told of what now happened to him. One of them is that, while on his journey, he met a stranger who persuaded him to go to Toledo instead of Paris. He is supposed to have spent seven years in that city studying alchemy and physics and to have become interested in the black arts. However, he did finally reach Paris where he took his medical degree and where he became a successful practicing physician.

The legend goes on to tell us that as a result of a dream he burnt his medical books and destroyed his phials and retired to the Dominican priory at Valencia in Spain. Later he joined the Dominican Order and was sent to Santarem in Portugal. Within a short time, because of his piety and learning he was elected Provincial for Portugal. In 1265 he died at Santarem.

St. Philip Benizi

Feast: August 23 (13th century)

St. Philip Benizi was born on August 15, 1233, of noble Florentine parents. After preliminary studies in his own city he went, when thirteen years of age, to the University of Paris. There he studied Galen and kept constantly before his mind the ideal physician who cares for the sick poor. He transferred to the University of Padua where, at nineteen, he received doctorates in philosophy and in medicine. For a year he practiced in Florence.

Attracted by the Servites, a religious order then only fourteen years old, he joined their community as a lay-brother. In 1259 he was ordained priest by the Bishop of Florence. Rapid promotion to various positions of trust followed, until in 1267, he was elected general of the order, and after the death of Clement IV he was considered for election to the papacy. During his career he visited much of Germany and France. An excellent preacher he soothed many discords and converted countless heretics. He sent missionaries to the East and was responsible for the

founding of the women religious known as the Servants of Mary. After a life of activity, both physical and spiritual, he died in 1285.

St. Antonio Maria Zaccaria

Feast: July 5 (16th century)

St. Antonio was born at Cremona, Italy, in 1502. His mother was responsible for his early training and she it was who implanted in him his great love for the sick and the poor. He studied philosophy at Ticino and then went to Padua where he received the degree of Doctor of Medicine when only twenty-two. Antonio then returned to Cremona where he developed a thriving practice and where he ministered to souls as well as bodies. Three years later he began to study theology and in 1528 was ordained priest. After ordination he went to Milan and joined the Confraternity of Eternal Wisdom and directed the founding of the Angelicals, a group of women whose purpose was to protect young girls.

In 1530 he and two other priests founded a community of clerks regular who were to preach in the highways and by-ways with particular emphasis on the Passion and death of Our Lord. In 1533 Pope Clement VII approved the new group under the name Clerks Regular of St. Paul. Toward the end of his life St. Antonio made the headquarters of the congregation at the church of St. Barnabas in Milan from which they get their name Barnabites. Worn out by his work St. Antonio died July 5. 1539.

Blessed Juvenal Ancien

Feast: August 31 (17th century)

John Juvenal Ancien, born at Fossano in Piedmont, October 19, 1545, was the first child of his Spanish father and Italian mother. At the age of fourteen he matriculated at the University of Montpellier but due to troubled political and religious conditions he transferred to a school at Mondovi in Savoy and later to the University of Padua. At the age of twenty-four he received doctorates in philosophy and medicine and was appointed to the chair of medicine at Turin. During his professorship he enjoyed an extensive practice and was famous for his care of the sick poor. His spare moments were divided between playing chess and writing verse in Latin as well as in the vernacular Italian. In 1574 or 1575 he accepted the invitation of the Duke of Savoy, who was ambassador to the Holy See, and became his personal physician. He found living quarters in Rome close to the prisons and hospitals where he spent much of his time

caring for the sick poor. He also took up the study of theology under the direction of St. Robert Bellarmine. On October 1, 1578, John Juvenal Ancien and his brother, John Matthew, joined the Congregation of the Oratory. After living at the Roman Oratory for four years he was ordained a priest.

From 1586 to 1596 he was associated with the newly organized Oratory in Naples where he became famous for his felicity of expression in preaching, his interest in the improvement of church music and for his organizational ability in helping the poor.

For six years he fought against his appointment as bishop, until, ordered by Clement VIII, he accepted the bishopric of Saluzzo. During the troubled times of his episcopacy he introduced many needed reforms. An unrepentant criminal poisoned him causing his death on August 31, 1603.

Blessed Martin De Porres

Feast: November 5 (17th century)

Blessed Martin is the only one of our physician-Saints born in the New World. He was the son of Don Juan de Porres, a Spanish knight, and of an Indian or Negro woman. He was born in 1569 at Lima and, because he happened to inherit his mother's dark skin, was forced by his father, at an early age, to make his own way in the world. He became apprentice and assistant to Dr. Marcelo de Rivero and earned quite a reputation as surgeon-barber. At the end of three years he joined the Dominicans and was admitted to the convent of the Friars Preachers at Lima where he was placed in charge of the infirmary. He was most anxious to be sent to the foreign missions but was kept busy tending the sick and poor of his own city where he helped found an orphanage and foundling hospital. Numerous miracles are attributed to him both before and since his death which took place at the Rosary priory in Lima on November 3, 1639.

Blessed René Goupil

Feast: March 16 (17th century)

Born in Anjou in 1607 René Goupil endeavored at an early age to join the Society of Jesus but was rejected because of ill health. He volunteered to serve the Society gratis in Canada and was accepted as a donne. He labored as a surgeon for two years in the Quebec hospitals and in 1642 started out for the Huron missions with Father Isaac Jogues.

They were captured by the Iroquois near Lake St. Peter and made to travel the thirteen days journey to the Iroquois country. Although he might have escaped he preferred to remain with Father Jogues and on this journey they were horribly tortured and beaten almost to death. At Ossernenon (Auresville) on the Mohawk River, René Goupil was finally tomahawked to death for teaching the Indian children the Sign of the Cross. Sometime before his death he pronounced, in the presence of Father Jogues, the religious vows of the Society of Jesus and so became the first of their order in Canada to receive the crown of martyrdom, on September 23, 1642.

Blessed Joseph Canh

Feast: July 11 (19th century)

Beyond the fact that Blessed Joseph Canh was a physician and probably either a Dominican friar or tertiary we know little of his life.

During the presecution of Christians at Annam in Indo-China under Minh-mang which ran from 1833 to 1840 many faithful Christians, after undergoing horrible tortures, were put to death. Blessed Joseph is listed with six other natives who were so treated. Three of them were priests: BB. Peter Tuan, Bernard Due and Joseph Nien; a tailor Blessed Thomas De; and two peasants, BB. Augustine Moi and Stephen Vinh. All of these converted and baptized many of their countrymen during their confinement in prison. The year of their death is 1840.

GENERAL REFERENCES

Acta Sanctorum, 64 v. in 65. Paris, 1863-1910.
Analecta Bollandiana. Brussels. v. 1 to date, 1882 to date.
Book of Saints. London, 1934.
Butler, Alban. *Lives of the Saints*. rev. by Herbert Thurston and Donald Attwater. new ed. 12 v. and index entitled *Dictionary of Saints*. London, 1926-38.
Catholic Dictionary. ed. by Donald Attwater. N. Y., 1941.
Catholic Encyclopedia. ed. by C. G. Herbermann and others. 18 v. and index. N. Y., 1907-1922.
The Roman Martyrology. 3rd Turin ed., tr. by Raphael Collins. Westminster, Md., 1946.
Walsh, J. J. *The Catholic Church and Healing*. N. Y., 1928.
Walsh, J. J. *Medieval Medicine*. N. Y., 1920.

EARLY PRINTING OF MEDICAL BOOKS AND SOME OF THE PRINTERS WHO PRINTED THEM

BURTON CHANCE

When the news of the bombing of Antwerp was received, I was reminded of my visits to the Plantin Printing-Shop Museum in that city (see fig. 1), and, I prayed that that celebrated sanctuary of culture, with its precious treasures, might have been spared from destruction.

Fig. 1.

Courtyard, Musée Plantin, Antwerp.

While going about the Museum, seeing the presses and the equipment of a XVI century printing shop, I tried to imagine the efforts the early printers must have made to transfer to the paper pages what they had read out of the hand-written and decorated sheets of parchment or

vellum, by types which might be made to press on a number of pages, duplicated over and over again, and thus be made available for all people, rather than for the cloistered recluse. And then I wondered what medical books, if any, the Flemish printer might have published.

While ruminating thusly, there came to my mind thoughts of what problems the Renaissance printer had in his inventing of type out of various materials with which to imitate the written characters and to so arrange them as to make it possible to imprint the corresponding words from the manuscripts. And I thought of the more, or equally so, serious matter of translating the early medical writings, available then only in Arabic, and so to render them back into their original form as to make them understandable.

Science in the XV century was thoroughly medieval, and, the writings were largely comments on Aristotle, chiefly in disquisitions by Avicenna, Albertus Magnus and Thomas Aquinas. At the time of the introduction of printing, the mind of the medical profession was Arabic, based upon Greek medicine but transmitted by a long process, through translators and transcribers, often beyond recognition. Yet, Arabic medicine had features of its own set forth by writers of great distinction. It is true, medical works existed, but they consisted, commonly, of tracts on the plagues which were scourging Europe; syphilis, and the sweating sickness. Herbals were numerous; they told of miraculous cures from the use of the plants described in them and were the guides to the folk in treating all diseases to which the flesh of man was heir.

During the Byzantine period, extending from 476 to 732 A. D., several works of much historical value were issued in manuscript, and later printed in Italy and Paris.

One of the first Arabian books to appear was the *De Medicinis Universalibus*, Mesue, printed in 1471. Among the Mohammedan and Jewish authors active in the period from 732 to 1096, should be mentioned Avicenna, whose works were issued before the end of the XV century, as were those by Maimonides (1139-1208) about 1480, in Florence.

The Arabians controlled medical thought for the greater part of the century (XV). In Ferrari's *Practice* printed in 1472, references are made to Averroes (1131-1218); Avenzoar (-1161); Rhazes (about 900), all of whose works were later on printed in Venice.

So thorough was the Arabian civilization and influence among the Mediterranean countries that manifestations of earlier Greek civilization were almost forgotten. The works of Galen and Avicenna were but little known. Through the rising of the Turkish powers in the East and at

Constantinople (1453), the long tradition of a Greek culture, perpetuated at that ancient capital of the Byzantine Empire, was doomed to extinction. It was at this period that printing was developed. Retreating Crusaders exchanged their armour, taking for it antique treasures; and the scholars, escaping from the Turks, fleeing westward, brought with them many copies of the old Greek literature. And the period known to us as the "Dark Ages" ended, giving birth to the "Renaissance," when, indeed, a real "New Birth" occurred, as pious and scholarly men sought to comprehend the ancient classics, and means to so translate them, and to reproduce them at a cost so low that the common man might acquire them as readily as had the princely and wealthy who, hitherto, had selfishly possessed them. And so, out of that urgent craving and want, the printing industry was inspired.

The first known bit of medical printing is the famous Mainz Kalendar for the year 1457; a unique copy, consisting only of the upper half, was discovered in 1803, by Gotthalf Fischer, in a register of accounts for the year 1457 in the Archives of Mainz! This precious document was given to the Bibliothèque Nationale. Among the earliest publications in Italy, according to Allbutt, was Ferrari's *Practice* referred to in a letter dated November, 1469, a work in two parts, printed in different years, the first having no date.

As would be expected, it was general literature, poems and plays of the ancients, which were reproduced years before professional works were attempted, such as legal, theological and medical. The printing of medical books was not begun until some years after general books had been published; yet but few medical works were obtainable before the middle of the XV century. There existed only Dioscorides, and Celsus, and relatively few works by Galen and Hippocrates to represent the true classical works. It is true that numerous comments on works by Aristotle and the two Plinys were at hand; Pliny's *Historia*, which deals with the medical virtues of plants, of diet, and hygiene. The origin of physic, and description of certain diseases, did not appear until 1469, in de Spira's edition issued at Venice. The total output of classical medical works for the period was, indeed, very small.

After the middle of the XV century medical works began to appear with somewhat increasing frequency. For instance, in 1467 Rabanus Maurus' *Opus de Universo* which contained a chapter on medicine; and, in 1497 Brunschwig's *Buch der Cirurgia*, both published in Strassburg.

In 1471 appeared from the press of Nicholas Jenson of Venice, *Liber*

VENVTI GRASSI HIE
RONIMITANI DOCTORIS
PERRIMI ACEXPERTIS
SIMI DE OCVLIS EORVMQVE
RVM EGRITVDINIBVS & CVRIS EI
VS LIBER INCIPIT.

Volentes scribere omnes circumsti
cupiunt & habere facultatem uentatis
adhibens enim quod ostensum a
Hieronymo Benuenuto comitatus
tum secundum dicta antiquorum
rum & meorum per longum tem
quod Datum quod per mundi & per
tes medicinas in frigidis quam
dicto auxilio adiuuante & semp
oculorum & comunalescentius
Et humoris cum
& doctrina omnes cer
acquisitam reducendo in scripsis et
memoriam cõseruari q o
hominum egritudinibus
eorum tam di cor

Secundum autem [illegible] medicis compo[illegible] simplice que ingigent pres[illegible] necessitatis magne earum [illegible] exprimere: & medicinas cobarere [illegible] aliquas ex eis. Et discernere que ex eis bona sunt et que non bona. & alia secundum hanc formam. Preuidi igitur aggregare omne quod necessarium in hoc: secundum rememoratione meam. Et ordinaui hunc librum in tres tractatus.

Primus eorum de preparatione lapidu & mineraliũ solũ: & de ablutione eorum & de adustione & confectione eorum sicut est marchasita & atramentum & calcantum & colcotar & species aluminis & species salis & plũbi & ferri & eris & cohol & scoria argẽti & scoria auri & de ablutione thucie & calcis: & de [illegible] argenti uiui & vitrioli & de medicis

Servitoris, attributed to Albucasis, a native of Cordova, in the XI century (see fig. 2). Although the most famous writer among the Arabians, his works did not appear translated until 1500, though part appeared in the Venice, 1497, edition of Guy de Chauliac.

Despite the importance of the School of Salernum, it was not until about 1480 that the first work appeared from the early presses. One of the most popular was the *Antidotarium*, of Nicholaus, who flourished at about 1100, which was printed by Jenson of Venice in 1471.

The College of Physicians of Philadelphia possesses *De oculis eorumque equitudinibus et curis*, one of four known copies of the first separate monograph on disease of the eye, by Grapheus (Benvenuto Grassi) which was printed at Ferrara by Severinus, in 1474 (see fig. 3).

Celsus was almost unknown during the Middle Ages, yet his works were the first of the classical period to be printed at the "revival of learning"; editions appeared in Florence in 1478, and in Milan, in 1481. There were others, e. g. by Junta, in Venice, in 1524. The most highly esteemed, however, was by the Aldines, in 1528.

Dioscorides wrote especially on materia medica. Certain of his works were published in Greek by the Aldine Press, in 1499, in Venice; while of the Latin translations that published by Stephanus, in Paris, in 1516-18 may be mentioned.

The "Omnia Opera," the most important of Galen's works, were issued, in Greek, in 5 volumes, by the Aldine in 1525 (see fig. 4). Numerous other editions were published by various houses during the century, both in Italy and in France.

It is remarkable that, except in unimportant tracts, the publication of the works of Hippocrates was long delayed. The first systematic edition of the Latin translation was issued in 1525, from Rome. François Rabelais (1490-1553) lectured on the "Aphorisms" of Hippocrates from a Greek text which he had translated and edited. And, in 1526, the Aldine Press published a superb edition of the works of Hippocrates in Greek. Froben, too, in 1538 issued a Greek text, from Basle.

For quite a quarter of a century the world relied on the imperfect knowledge of Galen and the continuance of Celsus' teachings.

Printing became known in Europe as early as the XIII century, but in which country it was invented, the name of the inventor, and the year, are all unknown! The matter is still in dispute. "Block books" were common in the early part of the century. The first types were made of wood, being cut by hand. They might be counted as links between the

Joannis Tpcciij Cattanensis

ΑΠΑΝΤΑ ΤΑ ΤΟΥ ΙΠΠΟΚΡΑΤΟΥΣ.

OMNIA OPERA HIPPOCRATIS.

Ne quis alius impune, aut Venetiis, aut uſquam locorum hos Hippocratis libros imprimat, & Clementis VII. Pont. Max. & Senatus Veneti decreto cautum eſt.

Fig. 4

Hippocrates. Earliest Greek edition of *Omnia Opera*. Venice, Aldus, 1526.

blocks and the metals, yet it is known that the metals too were cut instead of cast. Gutenberg has been credited with the invention of movable types, yet no product from his press appeared with his name; and, moreover, none of his associates mention his name as that of the inventor of printing.

Many small shops were established in several towns throughout Germany, but the sack of Mainz, in 1462, scattered the printers, especially, those gathered about Strassburg. It is, therefore, not surprising to learn that the practice of printing spread rapidly throughout the Continent before the close of 1480. And, by the end of the century, it was carried to many places in central and northern Europe. It was early taken to Italy. The first book known to have been printed in Milan and Venice, was in 1460; in Rome, 1465; in Paris and Bologna, 1470; in Naples and Pavia, 1471; in Lyons, 1477.

According to Stow's *Survey of London*, published in 1598, "Islip, Abbot of Westminster, erected the first press of book printing that ever was in England, about the year of Christ, 1471. William Caxton, citizen of London, mercer, brought it into England, and was the first that practiced; after which the like was practiced in the Abbey of St. Augustine at Canterbury, St. Alban's and other monasteries." It has been estimated that the output of the presses in the XV century amounted to 20,000,000 copies.

In the formal annals of medicine one may find brief biographies of writers of the printed works, together with dates of the publications, but, rarely does one see anything more than the names of the printers. Ought not we to know who those brave men were who provided us with the means of acquiring knowledge of the records which, often, they made available for all at prices so low as to be within the means of even the poorest student reader; books composed by the publisher at great expense and personal sacrifice?

Let us spare a few moments to learn something about certain of those printers to whom reference has been made in recounting the issuing of the early editions of works which have become today's medical classics.

Aldus Manutius

Aldo was no mere printer and bookseller! He was a scholar, enthusiastic over his desire to distribute what he had acquired by his learning, in order that his fellows might have delight in reading the great books of the ancients. He, associate of learned men, was a leader and not a follower. His is among the greatest names in all literature, and, that name, and his fame, shall endure as long as the literary world exists.

Theobaldo Manuzio, for that was his true name, was born in 1450. He studied Latin in Rome, and Greek at Ferrara. He became the tutor in a princely family, a family which supported his ambition besides devoting themselves to him in the bonds of friendship. It was they who supplied him with funds necessary for starting his printing presses. His great ambition was to print the Greek works which had existed only in manuscript.

In 1490 Aldo matured his plans to establish a Greek press. Because of the security, and distance from warlike cities, he opened his shop at Venice, rather than cultured Florence. He believed that in Venice he might find that city more likely to be accessible and attractive to Greek scholars than was then possible at an inland city. Accordingly, he took a house near S. Agostino's Church, where his shop soon became a "Greek" colony. In it, it was the rule that all business and learned intercourse with scholars should be carried on in Greek; for Greek had become the language of his household.

There Aldo organized a great printing house, superintending the work of many men, from the manufacturing of the types to the binding and selling of the books, even to the making of the ink and paper!

Such Greek letters as were obtainable at that period were both clumsy and faulty. Aldo set at once about the cutting of a complete font of Greek types for which he provided the machinery, basing them on models devised by Musuras, a Cretan, a theologian in Latin orders, living near Aldo. The types were cut by Francisco da Bologna, an intimate friend of Aldo. Those Greek types were adapted from the character of what had been used in early manuscripts, becoming what is known now as "Italic" and the "Aldine." It has been stated that these types resemble the handwriting of the poet Petrarch.

The ink, too, was made at the "Colony"; the hand-made paper excelled all previously obtainable, and is, even to this day, perfect. There was also a bindery.

The romance of that academical colony forms a chapter in itself. It was here that Aldo issued the poems and plays of classical Greek. It may be believed that Greek was well understood as the prefaces to his great books are in Greek. Because of the necessary accents and "ligatures" the font comprised 600 different characters. Aldo had three fonts made. In 1495 he issued a Greek and Latin grammar and the first volume of a complete edition of Aristotle; the remaining volumes came by 1498 (see fig. 5).

ΠΟ[illegible]ΟΥ ΕΙΣΑΓΩΓΗ.

ΓΕΝΟΣ. Ἀναγκαῖον χρυσάορι ⸫ ἀκριβῶ τῶν περὶ ἕκαστον ἐλθεῖν κατηγορεῖν δίκης καλίαν, τοῦ ὑμνεῖν τὸ [illegible] τὸ δὲ ἀπλουστέρως ἐστὶ τὸ [illegible] ἐστὶ τὸ [illegible] ἀποδείξεως. [illegible] ἕξις τῆς τοῦ τῶν ἀκουόντων ἀκροάσεως, ἐν ᾧ τὸ μόνον παράκειται μόνον, περιόντος δὲ διαφορῶν ὡς περ ἐν εἰσαγωγῇ τοιαύτῃ, τὸ περὶ τοῖς πρόσθεν εἰρημένοις ἐπελθεῖν. τὸ μὲν οὖν γένος ἐστὶ μόνον ἀπὸ γόμφος ζητημάτων· τὸ δὲ ἁπλουστέρως συναγωγὸς γόμφος. Ἀντίκα περὶ γένους καὶ εἴδους, ἐπειδὴ ἐν μὲν φιλαῖς ἐπινοίαις κεῖται, ὅτι καὶ ἀνθρώπου σώματός ἐστιν, ἢ ἀσώματος· καὶ πότερος χωριστὸς ἐν τοῖς αἰσθητοῖς· καὶ περὶ ταῦτα ἀφιζῶσι, παραπλησίως λέγω· βαθυτάτης οὔσης τῆς τοιαύτης πραγματείας, καὶ ἄλλης μείζονος διομωμένης ἐξετάσεως· τὸ δὲ ὅπως περὶ ἑκάστων καὶ τῶν προκειμένων λογικώτερον οἱ παλαιοὶ διέλαβον, καὶ τούτων μάλιστα οἱ ἐκ τοῦ περιπάτου, νῦν σκοπεῖν ἐπιχειρήσωμεν.

ΠΕΡΙ ΓΕΝΟΥΣ.

Ἔστι δὲ μήτε τὸ γένος, μήτε τὸ εἶδος ἁπλῶς λέγεσθαι· γένος γὰρ λέγεται καὶ ἡ πανὸν ἐχόντων πως πρὸς ἕνα τινὰ ⸫ πρὸς ἄλλους ἄθροισις, καθ' ὃ σημαινόμενον, τὸ Ἡρακλείδων λέγειν γένος, ἐστὶ τῆς ἀφ' ἑνὸς γενέσεως, λέγομεν δὲ τοῦ Ἡρακλέους, ὃ

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Aristotle. Page 1 of *Complete Works*. Venice, Aldus, 1495-1498.

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In 1500 the Aldine " Academy of Hellenists " founded for the special purpose of promoting Greek studies and the furthering of the publication of Greek authors, in all, besides the craftsmen, numbered 30 persons. The compositors were Cretans and one performed the part of reader. What a busy house; and, what a strain on Aldo! Its rules were written in Greek, the members were obliged to speak Greek. Aldo, sustained by the enthusiasm of his great undertaking, never allowed his interest to flag. None could be more devoted to so great an object that served the cause of scholarship by the widest distribution of books, obtainable at moderate prices, certain might be had for " a shillling "! The five volumes of Aristotle, containing the whole of Aristotle, for a sum not exceeding " 8£ Sterling " according to a statement made in the XVIII century, but eight to ten times greater than those prices by more modern comparisons. As already stated, the first volume saw the light in 1495. When we consider the beauty of those volumes, and the critical excellence of the texts, we may be fairly astonished at their price.

Aldo married in 1499 a daughter of Andrea Torresano of Asola. Andrea, years earlier, had bought the press of Nicholas Jenson, of Venice. Aldus and " Asolanus " became partners and, henceforward, their names were associated on the title pages of their publications.

The motto " Festina lente " and the device of the " Dolphin " and the " Anchor " were never abandoned; they were intended to symbolize " quickness of execution combined with firmness of delineation." Sir Thomas Browne interpreted it to be " celerity with cunctation."

The expenses of publishing were heavy, the uncertainty of the book market so great, and the privileges of copyright granted by the Pope, or the Venice Senate, so irregular, that Aldo, after giving his life to the work of bequeathing Greek literature to the world, died a poor man.

The Aldo family carried on the work for two generations, until 1590. As the years passed, the beauty of the books sadly deteriorated, and the publishing was of less and less importance. The principles of the Aldine influence, however, became the standards of all later printers. And it was Aldus who made it possible to distribute the benefits of printing among the greatest number of people and at a reasonable cost.

Jenson

But little is known of the life of Nicholas Jenson. He learned his art in Mainz, and, for a time, he worked with Aldus. His first shop in Venice was opened in 1470. He published only a few medical works. He is

credited with the creation of the Roman type. It was he who put the designing of movable type-faces on a highly artistic level, and Jenson's types have been held ever since as the standard for beauty and balance in the design of letters for printing. Jenson later became the foremost printer of Paris.

Junta

The Giunta (the Latinized form of the name Junta being used equally as frequently) was a family of printers who operated in the XV, XVI and XVII centuries in Italy, Spain and France.

The works of Galen had been printed for many years before Junta issued a complete edition in Venice, 1541-2. The latest was published by Lucantonio, who must have lived to a great age, as his name appears in the colophon of a book dated 1537. It was Lucantonio who printed a Celsus, in 1524. Besides Galen's and Celsus' works, a Greek text with a Latin translation of Hippocrates issued from their press, edited by Mercuralis, in 1588. The name appears variously until the middle of the XVII century, after which it disappears in the history of printing.

Wynkyn de Worde

Wynkyn de Worde, a native of Lorraine, became known in England as the pupil of Caxton. It is not known when he became associated with that master, yet it must have been while still a youth, as he was living at about 1535, and it is recorded that he succeeded to Caxton's stock in trade in 1491. He refrained from appending his name until 1493. From 1502 onwards, he maintained a shop in Fleet Street, at the sign of the "Swan." He used many of Caxton's marks, but it was not for a long time that he used any set one of his own. He printed some books well and some badly, most being indifferently done. He made many improvements in the art of printing and especially that of typesetting, but it was more likely that it was *Richard Pynson* than Worde who first introduced into London Roman letters, which he used as we now use italics; yet most of his typography was in English "black letters."

It is of interest to note that Thomas Linacre (1452-1524) physician to Henry VIII, published in 1517 a Latin version of Galen's treatise on hygiene, and his Latin translation of another work was printed at Cambridge in 1521. It has been said that this book was the first book in England to use Greek type. So slow was it that Greek became known to scholars in England, that the head master of St. Paul's School was,

in 1510, unable to find anyone competent to teach it. (Shakespeare himself "knew little Latin and less Greek").

John Froben

John Froben, a great printer and publisher, ranked with Aldus, having established his shop in Basle, Switzerland. He had as his friend and adviser, Desiderius Erasmus, the well-known Dutch scholar. Their friendship and association did much to advance the cause of good printing and good literature, for Erasmus was probably the most intellectual man of his time. He was Froben's "proof reader." Froben, in turn, became Erasmus' business adviser, for it was he who enabled Erasmus to receive pay for his writings. Erasmus not only received annual pay from Froben, but he resided with the family, and became godfather to Froben's son.

Erasmus left Basle for a time but returned to reside there, maintaining a close association with the Frobens until his death in 1526 at 70 years of age.

Froben, who was born in 1460, studied at the University of Basle, becoming proficient in Latin, Greek and Hebrew, which stood him in great stead in later years.

After learning the art of printing he set himself up in 1491. He so admired and used the types devised by Aldus that he was called the "German Aldus." He published in Latin and Greek. He died in 1527. Froben was known to exercise the greatest care in his work, and his reputation as a capable printer extended throughout Europe.

To Froben is to be credited the discovery of Hans Holbein, who came into Froben's employ in 1515. Many of the illustrations in the books printed by Froben were by Holbein, who had intended to become a wood engraver but who later was one of the great painters of Germany. The edition of Galen published in 1538 has initial letters by Holbein. It was through Holbein's friendship with Froben and Erasmus that he went into England, where he resided for many years, finally receiving a pension from King Henry VIII.

Froben's device is a pair of hands supporting an upright rod on which rests a frightened dove. Twined around the rod is a pair of serpents, the dove, apparently cowered down between the serpents' heads (see fig. 6).

Froben was succeeded by his son and other members of the family, who carried on the business until his death.

Stephanus, or Etienne

The golden age of typography existed in Paris during the first 60 years of the XVI century, manifested chiefly through the products of the Etiennes, a family of scholarly printers, known perhaps better by the Latin form of their name, "Stephanus." The first of the family was Henri, whose Greek and Latin classics began to appear after 1502. He sought accuracy as well as beauty. It is related of Robert that he would hang proof-sheets in the windows of his shop, inviting students of the University, as they passed by, to criticize them, and, he would offer a reward for the discovery of errors in them.

Fig. 6.

Printer's mark of Froben, Basel.

Plantin

Alas! The Plantin Museum was greatly damaged by the enemy. I am desirous that those who have not the memory of a visit to that unique building might see from this picture (see fig. 1) what a beautiful structure it was, and I venture to add some account of the original founder together with some note of what could be seen by the visitor to Antwerp.

Christopher Plantin was born near Tours, in 1514. He became a book binder in 1540, but in 1549 he began to be a printer. The books which came from his shop were distinguished for their accuracy, and beautiful

workmanship and finish. His shop became famous and often he employed as many as 20 workmen in active operation. Medical works were not printed until late in the XVI century. His Bibles were noted and so were his Greek and Latin classics. Branch shops were opened in Paris and Leyden. Christopher died in 1589.

The operations of the Plantins were carried on by the husbands of his several daughters, the most renowned of whom was John Moretus, whose descendants carried on the business until well into the XIX century when the shop and dwelling was sold to the City of Antwerp as a museum for 1,200,000 francs.

The " Museum " had its antique furniture, tapestries, and paintings, chiefly portraits, many of which were by Rubens, all expressing the culture of a Flemish patrician of the XVI century. The house presented a unique picture of the dwelling and contiguous business premises. The type rooms were preserved and there could be seen the old matrices, the composing and printing rooms built in 1570, and the presses all assembled just as though the workmen had retired the day before.

For many years printers were cruelly treated, even in England, so late as the famous Star Chamber. At the start the printers were frowned down upon lest they injure the business of the manuscript makers. The art of the " Scribes " was by no means easy to displace. They had been organized in the XII century by the Universities of Paris and Bologna, and for many years after printing had become common, distinguished scholars continued to send to their patrons their shorter works in manuscripts.

Alas! In the fury of early printing many valuable manuscripts were sadly wasted; the Arabians scorned to preserve the Greek and Italian originals.

The Renaissance began in the last stage of medievalism, and ushered in the first of modernism. It was the century of Gutenberg and of Columbus, " at once a summary and a preface."

The prime movers in the change begun in medicine were the great printers, who were classed as " medical humanists."

By the end of the first quarter of the XVI century a satisfactory paper had been made durable enough to take the recently manufactured ink, and of a texture capable of receiving the imprint by the newly formed types. The production of a suitable ink had been the most serious problem which confronted the printer employing movable types. The adoption of a press was not a great difficulty, as a screw-press had long been used in the

pressing of olives and grapes. It, therefore, was a simple process to construct a machine that could evenly and completely press the font of type distinctly on the sheets of paper. Then the printer was confronted with the problem of the adjustment and secure fixing of the types so that they might be pressed with the same uniformity as that obtained by the old "blocks." All was ready for publication. It was early realized that imprints might be made without number, and that the types, after use, might be distributed, ready for another work.

It was customary in books printed in the XV century to have no title page, no running headings, no catchwords, no pagination, no table of contents. Furthermore, no signatures, a common omission in printing anterior to 1480. Following the usual practice a blank space was left for the capital letters beginning the first word of the chapters or sections of the text. These spaces were intended to be filled in by the hand of the illuminator. The usual small letter or initial was printed at one side to indicate the decorated initial, to be drawn or painted by the often illiterate rubricator. There might be a simple or incomplete colophon, the full date of the publication. Books printed in the XV and XVI centuries were issued in sheets which the purchaser might have bound to suit his fancy.

It might be difficult for us, today, to imagine what a printing shop looked like in the Renaissance period compared with the ample and orderly arrangement of a modern shop. A view of Jodocus Badio's printing office in Paris, dated 1520, is shown in this cut (see fig. 7), which he used as a mark or sign of his products. And, there is an illustration from a German cut made about the middle of the 1500's, showing the operating of a printing shop. It shows the compositors, the ink balls, a press and recently printed sheets, the general servants, the "printer's devil" and the director.

In visualizing the printers' shop can we, at the same time, imagine what were the difficulties which the editor-printer had to overcome? There were no short cuts to learning what the text might have meant, for he had no lexicon, no dictionaries of antiquities.

Although Aldo had had struggles in his publishing of the Greek literary classics, he had no means of translating the Arabian works. Commonly, the original manuscript was destroyed by the Arabian translators at the time of their publication. How many precious manuscripts there must have been destroyed!

The medieval medical book publisher was thrown back to the same base as was experienced by the literary publisher. And, in addition, he

had to keep within his brain the language and the meanings of that language when he approached the task of composing for the press the newly discovered medical work.

Again, what a busy house Aldo's "academy" must have been! How

Fig. 7

Illustration of the wooden hand press used by Jodocus Badius in 1520, as it appears on the title page of a book from his printing shop.

the scholars must have struggled to ascertain the right reading of sentences to give the proper accents, to punctuate before committing the copy to the press!

Not only was it a problem of language, it was also the correct meaning and understanding of a science, at the time unknown to the printers.

The consummation of a complete medical work could be likened to the accomplishment of the completion of a general work, and the medical reader is justified in assuming that the labors of these men of genius and enthusiasm shine with splendor beyond our imperfect appreciation of their feats. Oh, that we might have the names of the medical men who helped Aldo and others in their titanic tasks, whose works have become an invaluable heritage of the medical world! They are truly heroes, whose scholarship should ever stand as an unpaid debt owing by all their successors.

At the mention of the names of Aldo, Henricus Stephanus, or Froben, our hearts should swell with emotion and gratitude, for their works have given us command of the past, and their foresight the certainty of their successors.

* * *

The inspiration to consider such a subject as here set forth was received from John Addington Symonds' *Renaissance in Italy*, the volume devoted to the Revival of Learning (Ed. 1912, London), Chapter VI.

The sources of information were numerous and varied, from which the facts above were gleaned and gathered together in the past twenty years.

For the historical portions, the "Texts Illustrating the History of Medicine in the Library of the Surgeon General's Office"—taken from Vol. XVII, Second Series of the *Index-Catalogue*, Washington, 1912.

Much was drawn from Osler's *Incunabula Medica* telling of the earliest printed medical works, 1467-1480, (The Bibliographical Society, Oxford University Press, 1923); and the Catalog of the Incunabula possessed by the College of Physicians, Philadelphia—prepared several years ago by Mr. Charles Fisher, the Librarian of the College.

Douglas McMurtrie's *The Book*, Covici-Friede, N. Y., 1937, and Clyde Oswald's *A History of Printing*, D. Appleton and Company, N. Y., 1928, were freely consulted.

To Mr. McDaniel, and his assistants at the College of Physicians, I give my thanks for their helpfulness in selecting for me from the precious incunabula possessed by the Library the works I had desired, and for their arrangement of the exhibition of them at the time of the meeting.

OVERSEAS EXPANSION AND ENGLISH MEDICINE TO 1800

CHARLES F. MULLETT

The first European to cross the seas in the age of discovery unwittingly began a major revolution in ideas. Of these ideas none exceeded science in importance; and of the scientific ideas medicine, because of its ramifications, utility, and interest, took first place. At the very time when overseas expansion was rapidly transforming English society, Sir Thomas Browne observed that "New Discoveries of the Earth discover new Diseases: for besides the common Swarm, there are endemial and local Infirmities proper unto certain Regions . . . and if *Asia*, *Africa*, and *America* should bring in their List, *Pandora's* Box would swell, and there must be a strange Pathology." [1]

Sir Thomas was neither the first nor the last to remark this impact. That vigorous 12th century explorer of lands and ideas, Adelard of Bath, put it as pregnantly: "It is worthwhile to visit learned men of different nations, and to remember whatever you find is most excellent in each case. For what the schools of Gaul do not know, those beyond the Alps reveal; what you do not learn among the Latins, well-informed Greece will teach you." [2] A century after Sir Thomas, Reynal, drawing his superb account of European colonization to a close, reflected "upon the good and evil" which the discovery of the New World had done to Europe. On the debit side he found avarice and bloodshed in abundance. Nevertheless, "this great event" had improved "geography, astronomy, medicine, natural history, and some other branches of knowledge"; and these advantages had "not been attended with any known inconvenience." [3] Scattered throughout his volumes were illustrations of this opinion; but a century and a half elapsed before scholars began to explore its possibilities.

Then some thirty years ago the distinguished historian, W. R. Shepherd, made clear that from many standpoints the homecoming aspects of expansion surpassed the outgoing in significance, and that modern European civilization owed more to the *discovery* of new lands than to the

[1] *The Works of Sir Thomas Browne* (3 vols., ed. Charles Sayle, Edinburgh, 1912), III, 378-379.

[2] *De eodem et diverso*, 32. Quoted in Lynn Thorndike, *History of Magic and Experimental Science* (New York, 1923), II, 20 .

[3] Abbé Reynal, *A Philosophical and Political History of the Settlements and Trade of the Europeans in the East and West Indies* (6 vols., trans. by J. O. Justamond, London, 1813), VI, 566.

recovery of the classical world. This conviction stood on the solid fact that European expansion revolutionized the domain of the intellect as conspicuously as that of economics or politics. Although a few students have enriched their historical interpretations by following his signposts, much specific investigation must preface the harvesting of his suggestions.[4] Fortunately, the materials are readiiy available.

Scarcely had explorers penetrated the New West and the Ancient East than their discoveries laid bare the inadequacy of contemporary science and inspired "a far-reaching revival of the spirit of investigation."[5] Such men—merchants, adventurers, or divines—found ideas and practices utterly unlike anything they had known. Under the circumstances many kept diaries of their observations. These, magnificently preserved in Hakluyt and later collections, are a majestic autobiography of an age and a people. They were read avidly by Englishmen at home, who in addition often had at their disposal the resources of personal conversation with the survivors of numerous journeys. As time passed the data increased in number and variety and became the source of many books.

From the outset the traveler faced new climates, diseases, and foods. Inevitably, with death taking no holiday, he did not fail to mention illness, the available drugs and herbs, the methods of prevention and cure, and indeed the whole penumbra of health, striking evidence that the dangers of voyaging went far beyond storms and hostile peoples. A new disease was as arbitrary as nature, as unpredictable as a strange coast, and often more fatal than either. Nowhere did the explorers' heroism and ingenuity shine more clearly than in their capacity to improvise defenses against death in any and every form.

What an amazing assortment these voyagers were!

> Rich man, poor man, beggarman, thief,
> Doctor, lawyer, merchant, chief.

Diplomats, sailors, chaplains, and hitchhikers too! Some extraordinarily skilled, others extraordinarily unskilled in narration. But whatever these gifts, the teeming experiences transcended mere syntax. Moral and unmoral, vigorous, verbose, and provincial, these men strode across seas and

[4] W. R. Shepherd, "The Expansion of Europe," *Political Science Quarterly*, XXXIV (1919), 43-60, 210-225, 392-412. See also James E. Gillespie, *The Influence of Overseas Expansion on England to 1700* (New York, 1920), esp. chaps. II, III, VIII, IX, and Jay B. Botsford, *English Society in the Eighteenth Century as Influenced from Overseas* (New York, 1924), esp. chap. IV.

[5] Theodore Hornberger, *Science and the New World* (San Marino, 1937), 3.

continents. In no wise abashed by what they met, perpetually amazed and perpetually taking everything for granted, they controlled each situation as it arose. Some lost their lives, others their liberty, most perhaps their health, but never their character. Their diaries then are the richest of historical sources—epic, profuse, vital, comprehensive—and the historian of ideas will forfeit much information and more insight if he overlooks this legacy of Britain's adventurers.

Following close upon such accounts, supplemented by naval and commercial records, some authors sought to forearm prospective mariners, merchants, and colonists through medical handbooks. Drawing from diaries, English and foreign, from the mouths of returned voyagers, and in some instances from personal experience, these at once served their intended purpose and nourished the curiosity of those virtuosi who were the peculiar glory of English learning. This literature swelled steadily in bulk, covered every medical phase of expansion, and, as time went on, appeared in various guises—books, transactions of learned societies, and periodicals. The character and significance of these materials will best be appreciated by a quick survey of the content, with particular reference to naval medicine, drugs and herbs, diseases, and foreign ideas and practices.

The influence of expansion upon medicine nowhere struck home more directly than in naval hygiene.[6] When Vasco da Gama sailed to India in 1498 he carried no medical stores, for he expected no diseases. Half a century later, with bitter experience as instructor, English voyagers not only carried medicines but paid great attention to cleanliness and the care and segregation of the sick. They also, whenever circumstances permitted, considered the proper seasons for venturing into untoward heat or cold.

Of all their problems none approached scurvy in horror and immediacy. This " dread disease its rankling horrors shed," so poisoning " with fetid steams the air around " that no sage physician, no skilful surgeon could halt its toll of some brave companion each dreary mournful hour. For all that and for all its continuance into the 19th century, mariners quickly devised protective expedients. Long before 1600 they were administering lemon juice, requiring cleanliness, and stressing temperance, all of which had uses beyond scurvy. When to precautions of this sort were added ventilation and sound diet the stage was set in the later 18th century for Captain Cook's loss of only one man by sickness during a voyage of three years and eighteen days. Malt, citrus, sauerkraut, portable soup, clean-

[6] On this whole matter see R. S. Allison, *Sea Diseases, The Story of a Great Natural Experiment in Preventive Medicine in the Royal Navy* (London, 1943); Louis H. Roddis, *A Short History of Nautical Medicine* (New York, 1941).

liness in ship and crew were the answers. Yet of course not all was progress. Twenty five years earlier, Anson's voyage around the world was horrible beyond compare: mortality among his crews in one year ranged from 52% to 75%, and among the auxiliaries from 90% to 95%.

Although a naval medical service had been organized in 1512 and the Admiralty from time to time appointed "learned and skilful" physicians and surgeons, conditions at sea often remained frightful, as regards both specific diseases and general health. This followed less from medical ignorance than from administrative indifference, circumstances, ship architecture, and predestination. Men were cheap; if they rotted that was mildly regrettable, but the navy must sail, blockade, or attack; ships must be constructed for seaworthiness and fighting efficiency; sailors had always died in great numbers—they didn't know any better, and in any case they must not be pampered by ventilators, varied diet, and competent attention.

Of course this is not the whole story. Captains at sea sought to improve conditions; sailors, surgeons, and the public petitioned for betterment; several influential authors—Lind, Blane, and Clark[7]—publicized the horrors of the navy afloat and stressed the need for cleanliness, a balanced diet, ventilation, adequate medical care, and a humane regimen. Thereupon, conscientious, informed administrators pressed for and secured these objectives. Perhaps also the example of the merchant marine had value. From the beginning the Trading Companies enjoyed the dividends of attention to the health of their seamen: captains were invariably expected to take every precaution in food, drink, and care, and the company listened attentively to recommendations from its servants. All told, these influences produced a solid record of interest and achievement.

Less immediately pressing than naval hygiene but in the long run of great value was the prevalent curiosity about drugs and herbs. "Every new discovery, every new plantation, every new branch of trade furnisheth some new thing, some rarity in nature, some specific in physic for the relief

[7] James Lind, *A Treatise on Scurvy* (1754, 1757, 1772); *An Essay on the Most Effectual Means of Preserving the Health of Seamen in the Royal Navy* (1757, 1762, 1779); *An Essay on Diseases Incidental to Europeans in Hot Climates* (1768, 6 ed. 1808). Gilbert Blane, *On the Most Effectual Means for Preserving the Health of Seamen, Particularly in the Royal Navy* (1780); *Observations on the Diseases of Seamen* (1785, 1790, 1803). John Clark, *Observations on the Diseases in Long Voyages to Hot Countries, Particularly the East Indies* (2 vols., 1792). Both Lind (1716-1794) and Blane (1749-1834) were Scots; each, like Clark (1744-1805), had practical experience, and all three wrote additional papers on medical subjects.

of a distempered world." [8] Long before the end of the 16th century Englishmen, chiefly noblemen and merchants, were filling their gardens with exotics, and with a medical purpose. By 1575, over a hundred drugs from the East and West had made their way into England, to make up perhaps one-third of a garden; and in 1650 the Oxford physic garden, founded in 1632, had 1000 exotics to 600 English species. Within a short time, this garden had " proved serviceable not only to all physicians, apothecaries, and those who are immediately concerned in practice of physic but to persons of all qualities serving to help the diseased and for the delight and pleasure of those in perfect health." [9]

Such an interest reflected the contemporaneous vogue of natural history and led to such enthusiasm that people soon exaggerated the value of the new herbs and drugs. " Oil of the fig tree of Hell " cured dropsy, colic, deafness, and muddy complexion. " Experience " showed sassafras to possess " most rare virtues " for the cure of diseases, " to be far better and of more uses " than guaiacum. Even more ubiquitous claims were made for tobacco,[10] ginseng, and " the bark." Indeed for a time it seemed mandatory to prescribe some sort of bark, irrespective of its species or the disease. If excesses resulted from such credulity the harm was small: and the readiness of men ill of strange ailments in a strange land to " make trial " of every herb the region afforded may have had beneficial results.

Although from the first the diseases of natives as well as Englishmen abroad excited attention it remained for the Royal Society to grasp the import of medical topography. In 1661 it appointed a committee to compile information about distant lands, and Robert Boyle drew up some " General Heads for the Natural History of a Country." [11] He encouraged men to discover what diseases were epidemical, what diseases the inhabitants were subject to, and the symptoms, as well as the prevailing temperatures and the salubrity or insalubrity of the air. Death threatened

[8] *Collection of Voyages and Travels from the Library of the Earl of Oxford* (2 vols., London, 1745-7), I, introductory discourse, 1.

[9] " Thomas Baskerville's Account of Oxford, c. 1670-1700 " (ed. by Humphrey Baskerville) *Collectanea*, Fourth series (Oxford, 1905), part iv, 187-190. Baskerville observed that " amongst the several famous structures and curiosities wherewith the flourishing University of Oxford is enriched," the physic garden, " deserves not the last place." Its " great variety of trees, plants, and exotic flowers " were " daily augmented by the Botanists, who bring them hither from the remote quarters of the world," where they passed under the care of a " skilfull and ingenious gardener."

[10] See my article, " Tobacco as a Drug in earlier English Medicine," *Annals of Medical History*, 3 ser., II (1940), 110-123.

[11] *Philosophical Transactions*, I, 186; Abr. (London, 1809), I, 63-64.

on every hand but since natives survived in these environments Englishmen needs must know the answer. This led them not only to prescribe native remedies but to observe closely local health and regimen.

Voyagers to America, the West Indies, Africa, and all parts of the East never failed to record the prevalent diseases, sometimes in meticulous and morbid detail. In some few cases, they remarked the absence of local antidotes but usually they were impressed with native techniques. They found Russia full of disease but believed that the inhabitants escaped the toll through frequent steaming baths. They saw the connection between the prevailing fevers, piles, and clap in Persia and the local climate, diet, and mores. They saw the prevalence of goiter in the Middle East as the consequence of the water. They were equally struck by the absence of diseases familiar to them at home and with the strength of others they scarcely knew in England. Yellow fever in Philadelphia, plague at Aleppo, and scurvy at sea, each received full description with appreciation of environmental factors. Some men praised the healthful character of this or that region, but they quickly pointed out that these were not places where Englishmen could eat heavy meals, engage in violent exercise, and rush out in the midday sun. Others, by contrast, insisted that Englishmen should avoid all products foreign to their nature and origins.

The earliest travelers were persistently fascinated by overseas medical ideas and practices, and that fascination never disappeared even though their successors viewed the situation more prosaically. Lettsom, "not content with going to the ancients for his illustrations," gleaned his materials from "a great number of early travel-books, quoting descriptions of the medical practices and beliefs" of North and South America, Africa, India, and the islands of the sea.[12] By and large the Ancient East offered more here. Whereas travelers to the West could do little more than record the use of amulets, tobacco, sassafras, or "apothecary drugs," those to the East ran into a host of sophisticated practices.

In Persia they were impressed with the great variety of simples, the baths, the numerous apothecary shops, the familiarity of the physicians with the great figures of the past (to whom they were "too much wedded"), the hostility to quacks, the emphasis on drugs and diet, the lack of anatomical knowledge, and the careless nature of practice. In Morocco they noted the good hospitals—one for frantic and distraught persons—and the

[12] F. N. L. Poynter and W. J. Bishop, "British Historians of Medicine," *The Medical Bookman and Historian*, II (1948), 108. Lettsom, the son of a West India planter, studied fevers at Tortola and later wrote his doctoral thesis on the medicinal properties of tea. J. J. Abraham, *Lettsom, His Life, Times, Friends and Descendants* (London, 1933).

number and wares of the apothecary shops. One traveler dismissed the Indian Brahmins as "piss-prophets" and astrologers. Another found the Turks predestinarian in medicine and dependent on Christian and Jewish physicians; others noticed the Chinese lack of water closets, inadequate medical training, and emphasis on the pulse. The technique of inoculation, urinalysis, and specific treatments for numerous diseases filled many pages. The East India Company agents quickly appreciated that in times of illness they would find it safest to "Indianize" and conform to the diet and practices of the country.

If this interest was largely spontaneous, part also followed the deliberate concern of people at home. From the outset Richard Hakluyt eagerly sought information from old travelers and as gladly gave it to new ones. A century later, the Royal Society, hailing science as the "relief of man's estate," encouraged correspondence from every part of the world. Still later, the periodicals played their educational part. They attacked the common practice of discouraging new discoveries and cited the hostility of "two conceited physicians" to the bark, "the most useful drug in medicine." They recommended the collecting and publishing of all sorts of records connected with overseas medicine—topography, diet, medicines, treatments, natural history, and memoranda of every sort.

To relate the development of medicine to overseas expansion is to think in terms far broader than specific discoveries, achievements, or interests. Although these advanced science, undue emphasis upon them distorts where it does not falsify the picture, for by themselves many were evanescent, trivial, and even fallacious. They were indeed soon and steadily replaced. At the same time they manifested a timeless and limitless widening of the human outlook, the evolution of the scientific spirit, the emergence of larger truths, and the gradual liberation of minds from prejudice.

The significant jump in medical knowledge between 1600 and 1700 and its equally significant application to health between 1700 and 1800 owed much to expansion. The great theoretical advances admittedly came from within Europe. Harvey, Malpighi, and Swammerdam presumably owed nothing to overseas influence, yet they and others came more freely to their discoveries than would have been possible in a Europe insulated against outside ideas. Gilbert at the end of the 16th, Browne at the end of the 17th, and Lettsom at the end of the 18th century—each was clearly aware of the world overseas, and each testified to its impact, an impact registered in myriad ways by countless people.

If Englishmen in the 16th century erected no great landmarks in the history of science, they nonetheless were exceedingly alert to progress elsewhere. In fostering an atmosphere hospitable to scientific activity, in encouraging the use of the vernacular, in establishing close links between the systematic learning of the scholar, the disorderly but vital interests of the virtuoso, and the technological skill of the artizan, they were paving the way for mighty achievements a century later. If utility bulked large in these beginnings and often colored all scientific interest, the progress of applied science did benefit a larger number of people and drove home the social significance of these additions to knowledge.

As this idea found expression, science penetrated the consciousness of men everywhere. The merchant companies "became patrons and promoters of practical science, and employed some of the ablest scientists as expert advisers";[13] their factors repeatedly sent reports to the Royal Society or wrote books on their own. The presence of Hakluyt's *Voyages* in ship's libraries bespoke awareness of Hakluyt's value in critical situations of whatsoever sort, health or navigation. Two centuries later, if the periodicals at once entertained and informed their readers with the cures of the Indians and the ideas of the Persians, they also served as clearing-houses for medicinal data; if they published both the sound and the unsound, the opportunity for comparison and criticism was freely presented. From the 16th to the 18th century Englishmen had unsurpassed resources of information, and the cross-fertilization of foreign and domestic, of physical and biological, of theoretical and applied science soon bore choice fruit.

No condition of Tudor England matured the scientific spirit more than the rise of the middle class, at once the cause and effect of expansion.[14] As this class evolved a culture suitable to its needs, it produced men, literate and free, who stressed the utilitarian values of science and who became its patrons if they did not dabble in it themselves. Before long, mariners, merchants, officials, physicists, and physicians were closely cooperating. William Gilbert, whose researches in magnetism were a side-line to his medical interest and whose scientific method was rooted in middle-class craftsmanship, promised a tractate "on the diseases of

[13] Francis R. Johnson, "Preparation and Innovation in the Progress of Science," *Journal of the History of Ideas*, IV, (1943), 57.

[14] Raymond P. Stearns, "The Scientific Spirit in England in Early Modern Times," *Isis*, XXXIV (1943), 293-300; Sanford V. Larkey, "Scientific Glossaries in Sixteenth Century English Books," *Bulletin of the History of Medicine*, V (1937), 105-114; Francis R. Johnson, "Thomas Hood's Inaugural Address as Mathematical Lecturer of the City of London (1588)," *Journal of the History of Ideas*, III (1942), 94-98.

hot and cold regions." The Royal Society, though repeatedly forced to halt such activities, served as "a kind of government subsidized experimental laboratory" for trading companies. These same companies in turn contributed to the advancement of learning. Archbishop Laud required the Levant Company to include Arabic manuscripts in every cargo to England; and the company itself partly on its own initiative sponsored a special study of the plague and contagion.

The middle class pushed the vernacular into unsurpassed importance. Patriotic pride and practical necessity dictated its use which was soon rationalized by the conviction that "where the sciences are most turned into the vulgar tongue, there are best learned men." Gresham College, opened in 1598, reflected the popularity of vernacular and encouraged its use in science. The professors gave their lectures twice, once in Latin for foreign visitors.

This college culminated six decades of hope and efforts to provide a clearing-house for scientific knowledge and its application to practical concerns.[15] Most notable among its intellectual fore-runners was Humphrey Gilbert's "Academy" which derives its interest from the author as well as his ideas. Although this famous "seadog" had not yet undertaken those explorations which brought him fame and death alike, his Devonshire origins guaranteed that he was born a venturing and from boyhood would know voyagers. His scheme for the "education of her majesty's wards and others the youth of nobility and gentleman" reflected, if ever so briefly, the contemporary emphasis. The scholars must know English, for "in what language soever learning is attained, the appliance to use is principally in the vulgar speech." Physical sciences had an important place. In addition, a doctor of physic would lecture in English on medicine and surgery touching all sorts of diseases and their medicines and always explaining the express purpose of the latter's ingredients. He must read surgical lectures because surgery was otherwise mainly learned in the barbershop; and he and the natural philosopher would have a garden for their simples. Such training insured that there would be "no gentleman within this realm but good for somewhat."[16]

If Gilbert's Academy and Bacon's House of Solomon, projected some years later, remained ideals, if two or three other schemes proved abortive, Gresham College, with its extension first into Boyle's "Invisible College" and secondly into the Royal Society, translated the ideals into mature

[15] Francis R. Johnson, "Gresham College: Precursor of the Royal Society," *Journal of the History of Ideas*, I (1940), 413-438.

[16] Early English Text Society, Extra Series, VIII (London, 1869), 1-12.

reality. It affected the methodology, scope, and content of science. It encouraged the comparative method whether in the whole outlook or in particular branches of science. It stimulated the founding of libraries and museums, physic and botanical gardens to regale the sense and dispose to reverence.[17] On the medical side, this spirit was reflected in pharmaceutical experiments, the expansion of training, and the prominence of physicians in the galaxy of 17th and 18th century scientists. From the beginnings down to 1663 physicians at one time or another occupied every chair in Gresham College except that of divinity, and in 1663 five of the seven professors were physicians.[18] They were conspicuous in the "Invisible College" and the Royal Society, although only two presided over the latter before 1800—Sloane and Pringle. Both had expansionist contacts, as did a third president, Sir Joseph Banks.

Expansion then nourished the whole realm of medicine, its ancillary sciences, and the environment in which both could prosper. It affected English health by changes in diet and clothing and by furthering the industrialism that created new problems and required new solutions. Not all its effects were good, for credulity or accident sometimes established an unsound regimen or postponed more fundamental reform. On the whole, however, it was attended with little inconvenience and with many advantages. Virtually every phase of the Enlightenment owed much to the influence of expansion, and the impact on science and medicine was at once the clearest, most diverse, and farthest reaching of all.

[17] W. P. Jones, "The Vogue of Natural History in England, 1750-1778," *Annals of Science*, II (1937), 345-352; R. T. Gunther, *Early British Botanists and Their Gardens, Based on Unpublished Writings of Goodyer, Tradescant, and Others* (Oxford, 1922).

[18] Charles C. Gillispie, "Physick and Philosophy: A Study of the Influence of the College of Physicians of London upon the Foundation of the Royal Society," *Journal of Modern History*, XIX (1947), 210-225; Phyllis Allen, "Medical Education in 17th Century England," *Journal of the History of Medicine and Allied Sciences*, I (1946), 115-143.

NORTON STRANGE TOWNSHEND—PHYSICIAN, LEGISLATOR, "FATHER OF AMERICAN AGRICULTURAL EDUCATION" (1815-1895)

LINDEN F. EDWARDS

The year 1948 is of special significance to the alumni, students, faculty and friends of the Ohio State University, because it is the Diamond Jubilee year of that institution, its doors having been first opened for the reception of students on September 17, 1873. Like many state-supported educational institutions it was founded according to the provisions of the Morrill Land Grant Act of Congress signed by President Lincoln on July 2, 1862. This Act of Congress provided Federal grants of land to each state for the support of the so-called land-grant college, which was to be devoted primarily to the teaching of the sciences related to agriculture and the mechanic arts. In 1870 the Ohio General Assembly passed the Cannon Act which provided for the establishment in Ohio of "A College to be styled the Ohio Agricultural and Mechanical College. The leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agricultural and mechanic art." It vested the government of the College in a Board of Trustees the members of which were to be appointed by the Governor subject to confirmation by the Ohio Senate. On May 1, 1878 the Ohio General Assembly by an Act of reorganization, changed the name of the Ohio Agricultural and Mechanical College, which had been nicknamed "the cow college in the cornfield" to its present title.

It is not the purpose of this paper to publicize the Ohio State University but rather to pay homage to Dr. Norton S. Townshend, physician and surgeon, who was an ardent supporter of the movement to establish the institution, a member of its first Board of Trustees and its first Professor of Agriculture.

Dr. Townshend was born in Clay Coton, Northhamptonshire. England on Christmas Day, 1815. Here he was educated in a boarding school until the age of 14. In the spring of 1830 he and his parents came to the United States and settled on a farm at Avon, Lorain County, Ohio. During the six years he remained on his father's farm his father, who was an Oxford graduate, instructed him in history, Greek and Latin and during his spare time he took advantage of his father's library which

was well stocked with books of a wide range for those times. The claim is made that, aside from the famous Coon-skin Library of Amesville, Athens County, Ohio now on display in the Ohio Archaeological and Historical Museum, the Townshend library was one of the first circulating collections in Ohio because the neighbors for miles around borrowed the books (5).

In 1836 Dr. Townshend taught a district school and in 1837 he began to study medicine under Dr. R. L. Howard of Elyria, Ohio. In the fall of that year, being a husky young farmer and short on traveling funds, he walked from his home in northern Ohio to Cincinnati to attend medical lectures at the Cincinnati Medical College, later returning to Elyria to resume his preceptorship under Dr. Howard (7).

In 1839 he enrolled in the College of Physicians and Surgeons of New York from which institution he received the M. D. degree in 1840. The following year he spent abroad visiting clinics and hospitals and attending lectures and demonstrations in surgery in London, Edinburgh, Dublin and Paris. His daughter, Miss Harriet N. Townshend, who enjoys the distinction of being the last surviving member of the first class of the Ohio State University, related to the writer recently an interesting account of Dr. Townshend's frequent meetings while he was studying in Paris with Louis Daguerre when the latter was absorbed in experiments with photography and how as a result of these chance meetings and their mutual scientific interests a close friendship between the two developed.

In 1841 Dr. Townshend returned to Avon, Ohio to practice medicine and surgery, subsequently moving to Elyria, which was close by and had a larger population.

In 1848 he was elected to the Ohio General Assembly as a representative from Lorain County. He was an active member of the Anti-Slavery Society of Ohio and had served as its delegate to the World's Anti-Slavery Convention which was held at London, England, in June 1840, while he was visiting hospitals in that city. As a member of the Ohio House of Representatives he took an active part in securing the repeal of the so-called "Black Laws" of Ohio to which the anti-slavery element in that state had been bitterly opposed since their passage. During this session of the legislature Dr. Townshend was largely instrumental in electing Salmon P. Chase of Hamilton County, Ohio to the U. S. Senate; he was destined later to become Governor of that state, Secretary of the U. S. Treasury and Chief Justice of the United States. In 1850 Dr. Townshend was elected a member of the Ohio Constitutional Convention which framed the present Constitution of that state. He was an ardent advocate of woman

suffrage and in the Constitutional Convention he moved to have the word "male" stricken from the suffrage clause. In the fall of 1850 he was elected a member from Ohio to the 32nd Congress and served from March 4, 1851 to March 3, 1853. He was elected to membership of the Ohio Senate which convened in 1854 and 1855. As a member of that body he proposed the establishment of the present Ohio State Institution for the Feeble-minded and was appointed a trustee of that institution in which capacity he served for 21 years (6, 7).

He was appointed a member of the Ohio Agricultural Board and according to its Annual Reports he served from 1858 until 1862, during 1868 and 1869 and again from 1886 to 1889, serving twice as its President and once as its Recording Secretary. On March 11, 1863 he received a commission as Medical Inspector of the United States Army with the rank of Lieutenant-Colonel in which capacity he served until the end of the war. In 1867 he was appointed by President Johnson as examiner of the wool appraisers department of the New York and Boston custom houses to ascertain how correctly wool was being classified. Shortly thereafter he and Joseph Henry of the Smithsonian Institution and Dr. John Torrey of New York were appointed by President Johnson members of a committee to make periodical chemical analyses of the government coinage of the U. S. mint at Philadelphia to determine its uniformity and standard purity (5, 6, 7).

Dr. Townshend, for many years prior to his appointment to the post of Professor of Agriculture at the Ohio State University, elicited great interest in the scientific development of agriculture. To Dr. Townshend (according to Professor C. E. Morrow, University of Illinois, in an address delivered to the students of agriculture at the Ohio State University—7), belongs the credit of having been the first person within the United States to make actual use of tile in land drainage. He was associated with the first attempt for special agricultural education in the United States. In 1854 he and Professors James H. Fairchild and James Dascomb of Oberlin College and Dr. John S. Newberry of Cleveland established The Ohio Agricultural College for the purpose of providing scientific training for young farmers. This venture, however, was a financial failure and was abandoned three years later, after two sessions at Oberlin and one at Cleveland. Although the venture proved a failure his associates subsequently became men of distinction, Professor Fairchild later serving as President of Oberlin College for many years (5) and Dr. Newberry becoming internationally famous as a paleobotanist, an incorporator of the National Academy of Sciences, President of the

American Association for the Advancement of Science, President of the New York Academy of Sciences, President of the International Geologist Association and the first American to be presented the Murchison Medal by the Geological Society of London (9).

Dr. Townshend took an active interest in the passage by Congress of the Morrill Land Grant Act of 1862 and in securing the acceptance of that act by the State of Ohio (3).

Iowa was the first state to accept the provisions of the Morrill Land Grant Act and on March 17, 1869 The Iowa Agricultural College was formally opened for the admission of students. Dr. Townshend was appointed Professor of Agriculture and Horticulture in that institution in which post he served, however, for only one year. Under the authority of the Cannon Act, which was made into a law by the Ohio Legislature March 22, 1870, the first Board of Trustees of the Ohio Agricultural and Mechanical College was appointed, the members of which represented each of the 19 Congressional Districts of the state. Dr. Townshend was appointed from the 14th District, whereupon he resigned his position at the Iowa Agricultural College and returned to Ohio to assist in the organization of the proposed institution in which he had taken an active interest for so many years (5).

The site chosen for the new institution was a parcel of land consisting of 331 acres north of the City of Columbus, which at that time boasted a population of 35,000. On September 17, 1873 when the college formally opened for the reception of students, only one building, the present University Hall, was completed; only seventeen students were enrolled and only seven of the 10 faculty chairs were filled (9).

At a meeting of the Board of Trustees devoted to the selection of a faculty Dr. Townshend had been requested to submit his resignation from the Board. He was immediately appointed Professor of Agriculture, which included the subjects of botany and veterinary medicine. He occupied this chair with distinction until June 23, 1891 when the Board of Trustees made him Professor Emeritus of Agriculture. He died in his home on the campus of the Ohio State University July 13, 1895 at the age of 80. His long service to agricultural education is fittingly memorialized at the Ohio State University by a building called "Townshend Hall," which was dedicated January 12, 1898 and at the time was the largest building erected in the United States devoted exclusively to agricultural education (11).

Three of the first 17 students to report for classes on September 17, 1873 were Dr. Townshend's two daughters, Alice and Harriet, and his

son, Arthur Bailey Townshend, who later graduated in medicine and practiced for 50 years in New York (9). As mentioned previously, Miss Harriet is still living at the venerable age of 90 in her Columbus home which overlooks the familiar campus. It is a pleasure for the writer to make grateful acknowledgment to her for the valuable information about Dr. Townshend which she graciously and kindly furnished during the preparation of this paper. Some of Dr. Townshend's biographers claim that he relinquished his medical practice when he began serving in the legislative halls of the state (5, 6). In response to an inquiry as to how long Dr. Townshend practiced medicine Miss Harriet's reply was "Why, he practiced until he died." She then related how he voluntarily assumed responsibility for the medical care of the students who were housed in the dormitories on the college campus and that he was constantly being called for consultations by the local physicians, although he no longer maintained an office after his appointment as Professor of Agriculture.

Dr. Townshend was twice married. On December 27, 1843 he married Miss Harriet N. Wood, daughter of James B. Wood, formerly of Massachusetts. To this union were born two sons and one daughter. Mrs. Townshend died during the period that Dr. Townshend practiced medicine and surgery in Elyria. On October 17, 1854 he married Miss Margaret A. Bailey, daughter of a clergyman of Clarksburg, Va., now in West Virginia, and a teacher in the Putnam Seminary in Zanesville, Ohio. To this union were born the son and two daughters whose names were referred to previously (5).

At the entrance of Townshend Hall is a memorial tablet to Dr. Townshend. On it are inscribed the following:

To the memory of

Norton Strange Townshend
1815-1895

Beloved physician, Friend of the Cause of Human Freedom, Wise Law Maker, a pioneer in Agricultural Education, one of the Founders of the University and its first Professor of Agriculture, the Students of Agriculture and of Veterinary Medicine have placed this tablet.

A. D. 1909

BIBLIOGRAPHY

1. *Biographical Directory of the American Congress 1774-1927*, compiled by Ansel Wold (Washington, D. C.), p. 1624, 1928.
2. Burkett, Charles W.: *History of Ohio Agriculture*. Rumford Press, Concord, N. H., 1900.
3. Cope, Alexis: Norton S. Townshend in *Cyclopedia of American Agriculture*, edited by L. H. Bailey, The Macmillan Co., N. Y., p. 620, 1909.
4. ————: *History of the Ohio State University*, Vol. I, The Ohio State University Press, Columbus, Ohio, 1920.
5. Cunningham, John F.: An Early American Crusader: Norton Strange Townshend. *O.S.A.H. Quart.* 53: 355-370, 1944.
6. Howe, Henry: *Historical Collections of Ohio*, Vol. 1, pp. 100-101. The Ohio Centennial Edition, 1904.
7. Townshend, Harriet N.: A Sketch of the Life of Dr. Norton Strange Townshend. Unpublished manuscript in the Ohio State University library.
8. True, Alfred C.: *A History of Agricultural Education in the United States 1785-1925*. U. S. Gov. Printing Office, Washington, D. C., 1929.
9. University History, *The Ohio State University Monthly*, Vol. 39, No. 5, Feb. 15, 1948.
10. Waller, A. E.: The Breadth of Vision of Dr. John Strong Newberry. *O.S.A.H. Quart.* 52: 324-346, Oct. 1943.
11. Wing, L. B.: *Address at the Dedication of Townshend Hall, the Ohio State University, Columbus, Ohio, Jan. 12, 1898*. Champlin Printing Co., Columbus, Ohio.

THE BORDERLAND OF MEDICINE AND SURGERY AS CONCEIVED BY REGINALD HEBER FITZ

HYMAN MORRISON

Reginald Heber Fitz from his vantage point as pathologist, clinician and teacher concentrated his productive activity in what he happily termed "the borderland of medicine and surgery." His own contributions on appendicitis and pancreatitis became landmarks in this zone. Practically all his writings, evenly distributed in the fields of pathology, medicine and surgery, belong in it. A few of his papers deal with medical education, and a few with biographic and historic material. Through all his writings, however, he is the master who teaches and clarifies, never neglecting to give full credit to workers in the past.

Listing even a few of the topics will indicate the breadth of his interest. They include studies on tuberculosis, typhoid, pneumonia, neoplasm, anatomic anomalies, arteriosclerosis, amyloid degeneration, thrombosis and embolism, and diseases of the gastro-intestinal tract, gall bladder, liver, pancreas and adrenals. These find him now in the province of the physician, now in that of the surgeon, but more often in their borderland, common ground for both, "ever changing, open to each and productive to all." Also they show in him traits much like those he saw in his master, Virchow, "keenness of insight, accuracy of observation, breadth of view, soundness of judgment, and knowledge of the past."

One of the better known of these writings is on "Acute Intestinal Obstruction" read before the First Congress of American Physicians and Surgeons in 1888.[1] It was based on cases gathered along with the material on appendicitis and pancreatitis, with which it was not infrequently confused, and studied in the same painstaking manner. Here again his critical evaluation led him to the conclusion that its treatment was in the realm of surgery.

So by his personal contributions he was instrumental, in no small measure, in enlarging the bounds of surgery; yet he always aimed to keep the surgeon appraised of his limitations and to check his "imperialistic tendencies." This phrase, showing his capacity for the lighter vein in style, is from his address before the New York Academy of Medicine in 1901 entitled, "Some Surgical Tendencies from a Medical Point of

[1] *Transactions*, Congress of American Physicians and Surgeons, 1: 1-42.

View."[2] "The borderland of medicine and surgery," he said, "obviously includes both the province of the physician and the domain of the surgeon. These terms may be supposed to represent the modest claims of the former and the imperialistic tendencies of the latter. It is common ground, however, and the successful advance of either surgeon or physician will always be welcomed, provided the interests of mankind thereby are served."

Though the improvement in methods of surgical procedure during the preceding thirty years had greatly increased the number and variety of surgical operations, Fitz nevertheless deemed it desirable to question the value of some of these, and especially to pay attention *more* to the subsequent history of the patient than to the immediate success of the operation. He admitted that experience had shown that cases previously regarded as extremely dangerous or fatal without surgery had been greatly benefited, if not cured, by such treatment; also that the surgeon was emboldened to operate on presumably hopeless cases because at times the diagnosis proved incorrect, and a remediable condition was found.

On the other hand, immediate death, or extremely short relief, or prolonged suffering have resulted from operations designed to give longer life or greater freedom from distress than the physician could hope to offer. Again, the surgeon, failing to relieve diseases in their advanced stages, began to request of the physician cases with the morbid process not yet fully pronounced and the patient still in good general condition. He thus would explore, and at times even at the urgent request of the patient himself, when in the light of current knowledge, the physician, though suspecting a grave, perhaps fatal, malady, could not yet make a definite diagnosis. "But the supposed condition is often not found; organs are removed without relief of symptoms, which eventually may prove to be dependent on functional disturbance. . . ."

Relief of suffering and prolongation of life are legitimate aims, but, asked Fitz, "Aren't there too many operations performed with these objects in view? Granting life may be prolonged by the surgeon, is the life thus extended worth living?" The surgeon may encourage the patient more than is justified by the evidence. He may emphasize the most favorable outcome of the suggested operation and cite the lowest mortality statistics rather than the numerous fatal cases whose post-operative histories are not known. The diagnosis of the condition suggesting surgical treatment may be clear, but a complication may exist rendering

[2] *Boston Medical and Surgical Journal*, 145: 693-699.

any treatment useless, or a gland may be removed which is but one phase of a systemic disease. Especially does this limitation of surgery apply to malignant disease of the alimentary tract, with its usual fatal outcome and uncertainty of its duration, with death in many cases preceded by great suffering from obstruction. The surgeon is ready to explore to clarify the diagnosis, to resect or to anastomose. The physician, on the other hand, may palliate without operation, as he will have to do even after operation.

With all this, Fitz was far from wishing to discourage the surgeon in his efforts to relieve suffering, but he emphasized the importance of careful selection of suitables cases. Recognizing the marvelous benefits of anaesthesia and asepsis,—these benefits, however, were not without some drawbacks. Operations are too readily undertaken, some followed by immediate death, some proven unnecessary, others leading to invalidism. The advance of knowledge in the future should be in the direction of making surgery less necessary, avoiding unnecessary and harmful operations, and giving the surgeon the wisdom to restrain himself from operating rather than to enable him to operate successfully. Especially to be cultivated are greater accuracy in diagnosis and prognosis and a more widespread knowledge of pathology. The surgeon thus will become a better adviser, even though the number and varieties of his operations thereby may be materially lessened.

This address met with criticism on the part of some surgeons but it was timely then, as it is even now. His advice carried more weight, coming from him, as shown in the reaction of William W. Keen: "His wise conservatism comes to the front in his just criticism of the too frequent lack of knowledge of pathology on the part of surgeons, of indiscriminate exploratory operations and operations by so-called surgeons who only operate occasionally."

Fitz saw cause for continuing in the same critical tone in his presidential address entitled, "The Borderland of Medicine and Surgery" before the Congress of American Physicians and Surgeons in 1907.[8] The first half was a masterly survey of the history of medicine since Hippocrates with its division and subdivision into the various specialties, progressing now in one direction and then in another, "always seeking paramount unity." Whatever has benefited a part has always proved of benefit to the whole. Progress was checked by quarrels between physicians and surgeons, but with time dissensions have lessened, distinctions have become

[8] *Transactions*, Congress of American Physicians and Surgeons, 7: 136-164.

recognized, and a borderline was traced, " ever changing and surrounding a territory open to each and productive to all." It was his purpose to call attention to some of the landmarks in this borderland, to pay tribute to those who had been instrumental in establishing them, and to indicate some of the means by which this region was to continue productive.

Up to the 16th century all anatomic study had been done on the lower animals. " It was considered disrespectful to the dead to dissect the human body although the most horrible tortures were inflicted on the living often in consequence of simple difference of opinion." Through the labors of Vesalius and some of his contemporaries, anatomy became a science, rapidly disseminated by the invention of printing. Harvey's discovery of the circulation of the blood followed. Renewal of Hippocratic clinical observation of disease by Sydenham was soon supplemented by collateral post-mortem examination by Morgagni. Investigation of the vital functions was begun by Haller and systematized bedside teaching was initiated by Boerhaave. By that time the domains of medicine and of surgery had become correspondingly widened, especially as the latter had been raised to the status of a science, in large measure, through the influence of John Hunter.

Medical progress during the 19th century, especially in the second half, added more to the welfare of mankind as manifested by relief of suffering and disease than the sum of all efforts in this direction since the origin of man. The brilliant contributions of Morton, Pasteur, Lister and Koch, flowering into anaesthesia and asepsis, led to a rearrangement of the borderland of medicine and surgery, beneficial to both, adding more and more to the domain of the surgeon and opening fresh fields for the physicians.

The surgeon now definitely extended his activity not only into the realm of the curable but also of hitherto incurable diseases. Appreciating fully the benefits from this surgical invasion of the borderland Doctor Fitz still found sufficient reason to progress slowly and cautiously. Operative success was not necessarily justification for operation, as had been repeatedly recognized by those brought in contact with the consequent failures. Skill and judgment on the part of the surgeon could be developed only through long training both in the laboratory and in the clinic, and not merely by increased opportunity to operate. He agreed with Nicholas Senn who had advised the prospective surgeon " to master the elementary branches in college, do general practice for several years, return to laboratory work and surgical anatomy, attend the clinics of different surgeons and never cease to be a physician. If this advice is

followed there will be less unnecessary operating in the future than in the past." Bilroth also had said, " Before deciding on the necessity for an operation, I always propose to myself this question, ' Would you permit such an operation as you intend performing on your patient to be done on yourself? ' Years of experience bring in their train a certain degree of hesitancy."

The surgeon's responsibility is greater than that of the physician; the final decision rests with him. His skill in diagnosis, particularly in the borderland cases, should surpass that of the physician, since his opportunities of control come with every operation, while those of the physician are limited largely to the post-mortem examination of the patient beyond relief. The operation is permitted, the autopsy often denied. The surgeon's personal operative morality should be the crystallization of his best possible technique. He will be trusted more if he follows up the subsequent histories of his patients and if he has a thorough knowledge of the natural history of disease and of pathology.

The attainments in bacteriology, biochemistry and biophysics have been especially productive in the progress of medicine and surgery. Numerous discoveries in the etiology of disease, its methods of transmission, its prevention, the origin of symptoms, accuracy in diagnosis and precision in treatment are the outcome of research in these sciences. The ultimate extension of the borderland of medicine, the corresponding limitation in the field of surgery, and the discovery of means of making many operations unnecessary seem most intimately connected with further progress in these sciences.

On rereading these addresses delivered by Doctor Fitz nearly half a century ago one is strongly impressed with how applicable his wise constructive criticism is even now, when our country has become the medical center of the world. In the borderland of medicine and surgery productivity on the part of both the physician and the surgeon has continued to a degree much greater than he could have hoped. He certainly would have applauded the daring brilliant advances of the surgeon in this zone, with better than expected long-range results. He would have gloried in the great progress of medical education and research much along the lines he had suggested, and in the limitation of the surgeon by the miracle of chemotherapy. He would have given credit to the surgeon for his organized self-restraint, much as he himself had advocated. And yet the term " unnecessary operations " is still heard too often. So even now his wise teaching rings true: " With due appreciation of the great benefits which have arisen from surgical invasion of the borderland, there still exists sufficient reason to progress slowly and cautiously."

AMERICAN ASSOCIATION OF THE HISTORY OF MEDICINE

TWENTY-FIRST ANNUAL MEETING

College of Physicians of Philadelphia

May 26–27, 1948

THE PROGRAM

The Annual Meeting for 1948 was called to order at the College of Physicians on Wednesday, May 26, at 10 A. M., with Dr. R. H. Shryock presiding. Some last-minute announcements were made by Dr. M. S. Jacobs, chairman of the local committee on arrangements. Dr. Shryock announced that a meeting of the Executive Committee would be held immediately following the morning session. A message of greetings was read from Dr. H. E. Sigerist in Switzerland. The program was then followed as printed below.

Attendance on May 26 was 68 at the morning and 65 at the afternoon session, while at the afternoon session on May 27 it was about 35. The evening session on May 26 proved the most spirited of the entire meeting. The discussion was varied, representing the viewpoints of conservatives, liberals and radicals. Some advocated an endowed chair in medical history, others casual teaching by interested physicians, and still others no separate teaching of this phase of medicine. This last suggestion found support from the few harassed deans of medical schools present who have the same problem as other administrators, only twenty-four hours in a day. There were some who believed that time for the teaching of medical history might profitably be taken from that assigned to certain laboratory subjects. Attendance was 83.

During the meeting Dr. McDaniel had arranged an exhibit of some of the treasures of the College of Physicians. Dr. Packard demonstrated some of the historic objects at the Pennsylvania Hospital. Opportunity was also provided to visit old Blockley and the Philadelphia General and Lankenau Hospitals, the Historical Society and other places of special interest to members of the Association.

The Dinner Meeting was held in the Penn-Sheraton Hotel. A resolution was passed expressing to Dr. Francis R. Packard the appreciation of the Association for taking part in the reception at the Pennsylvania Hospital on the previous day. Dr. Leake was a very acceptable emergency speaker. In his usual manner he spoke with enthusiasm on the History of Medical Ethics. Mrs. Eileen R. Cunningham, President of the Medical Library Association, cordially invited Association members to attend any or all sessions of that group. There was a goodly number of Library members present at our Dinner Meeting. Others present were Dr. and Mrs. Frank L. Pleadwell of Hawaii and Dr. José P. Bantug and his daughter of Manila, P. I. The attendance at the dinner was 82.

WEDNESDAY, MAY 26, 1948

10:00 a. m. Opening of the Meeting by the President, Richard H. Shryock.

FIRST GENERAL SESSION: SYMPOSIUM ON THE PHYSICIAN IN THE EIGHTEENTH CENTURY

Giovanni Battista Morgagni . . . Saul Jarcho, New York City.
John C. Lettsom . . . . . Josiah C. Trent, Durham, N.C.
John Morgan . . . . . Whitfield J. Bell, Jr., Carlisle, Pa.

2:00 p. m. The Fielding H. Garrison Lecture.
Erwin H. Ackerknecht, Madison, Wisconsin.
Anti-contagionism and Other Early Nineteenth Century Theories on the Causation of Epidemic Disease.

3:00 p. m. Exhibits of the College of Physicians and demonstration of moving picture by Mrs. Appel.

4:30 p. m. Reception at the Pennsylvania Hospital.

8:00 p. m. SECOND GENERAL SESSION (Held jointly with the Section on Medical History of the College of Physicians): THE PLACE OF HISTORY IN MEDICAL EDUCATION.

Introductory Paper . . . . . George Rosen, New York City.
Discussion . . . . . Chauncey D. Leake, Galveston, Texas.
Claude E. Heaton, New York City.
Maurice S. Jacobs, Philadelphia, Pa.
Discussion from the Floor
Summary . . . . . Owsei Temkin, Baltimore, Md

THURSDAY, MAY 27, 1948

9:00 a. m. Meeting of the Council.

11:30 a. m. Business Meeting.

THIRD GENERAL SESSION—Miscellaneous Subjects:

2:00 p. m. Pan S. Codellas, San Francisco, Calif.
The Epimonidion Pharmacon of Philon the Byzantine: the Hunger and Thirst Checking Pill.

2:25 William A. FitzGerald, St. Louis, Missouri.
Medical Men: Canonized Saints.

2:50 Burton Chance, Philadelphia, Pa.
The Early Printing of Medical Books and Some of the Printers Who Printed Them.

3:15 Charles F. Mullett, Columbia, Missouri.
Overseas Expansion and English Medicine to 1800.

Five minute intermission

3:45 Linden F. Edwards, Columbus, Ohio.
Norton Strange Townshend, Physician, Legislator, "Father of American Agricultural Education."

4:10 Hyman Morrison, Boston, Mass.
The Borderland of Medicine and Surgery as Conceived by Reginald Heber Fitz.

4:35 José P. Bantug, Manila, Philippine Islands.
Hospitals and Other Health and Welfare Institutions in the Colonial Philippines.

DINNER SESSION—THE PENN-SHERATON HOTEL

7:00 p. m. Dr. Richard H. Shryock, *presiding.*
Speaker: *
Chauncey D. Leake, Galveston, Texas.
The History of Medical Ethics.

*Sir Raphael Cilento who was to speak on "Historical Cycles in the Organization of the Practice of Medicine" was unable to attend.

MEETING OF THE COUNCIL

The meeting of the Council was called to order on the morning of May 27 by Dr. Shryock.

I. Report of the Secretary

According to the Treasurer's files the membership of the Association is made up as follows:

Members in Good Standing		Delinquent Members	
Active members	406	Active members	25
Corresponding members	5	Corresponding members	3
Honorary members	13	Constituent societies	1
Constituent societies	18		29
	442		

The following losses have occurred:

Resignations		Deceased	
F. F. Barth	New York	M. O. Bousfield	Chicago
N. Chilton	Trenton	I. W. Held	New York
G. R. Cowgill	New Haven	G. Hinsdale	Charlottesville
M. M. Davis	New York	E. M. L'Engle	Jacksonville
S. H. Fisher	New York	G. B. Webb	Colorado Springs
H. G. Hadley	Washington	Juan Ramón Beltrán	Buenos Aires
A. D. Hart	Charlottesville		
D. B. Jewett	Rochester, N. Y.		
H. W. Jones	Washington		
S. P. Lucia	San Francisco		
J. S. A. Miller	Bellerose, N. Y.		
G. J. Newerla	Waltham, Mass.		
G. C. Robinson	Baltimore		
H. Roesler	Philadelphia		

Favorable action was taken on the election of 31 Active Members and 3 Corresponding Members.

Expenses incurred include:

Postage	$ 10.00
Telegrams	1.86
Clerical help	60.00
Mimeographing and mailing service	24.75
	33.85
	38.26
	$168.72

The chief task of the Secretary is to take care of correspondence and conduct the business of the Executive Committee. In addition to looking after applications for membership and notifying new members of their election, a wide variety of problems require attention.

On August 15, 1947, H. E. Sigerist resigned his office as Editor of the Association. According to action taken at the last Annual Meeting, Miss Genevieve Miller assumed the office of Acting Editor until such time as a new director is appointed for the Institute of the History of Medicine at Baltimore.

In reviewing the revised Constitution and By-Laws approved at the last Annual Meeting, many additional changes were proposed by the Committee on Revision. It was therefore decided to postpone printing the Constitution until the new alterations were acted upon at this Annual Meeting. Copies of the last revision were mimeographed and mailed to members of the Executive Committee and the Committee on Revision.

All copies of the Osler Medal originally ordered have now been awarded. A quotation for additional copies at $15.00 each including engraving has been received from the Medallic Art Company of New York. The Executive Committee has approved the purchase of 5 additional medals. The Secretary asked that he be granted the privilege of purchasing an additional medal for the Museum of the Cleveland Medical Library.

The preliminary report of the Program Committee and the report of the Nominating Committee were mimeographed and mailed to members of the Association.

An examination of the geographic distribution of the membership list has brought some interesting speculations in the field of future influences of the Association. About 20 per cent of the members are in New York State and 11 per cent in Pennsylvania. Ohio ranks next with 7 per cent, and Illinois has almost as many. Massachusetts and Maryland are next in order, followed by the western group of California, Kansas and Michigan, with the District of Columbia in the latter category. Furthermore, the number of members in the western states of California, Kansas, Missouri, Illinois, Ohio, Michigan, Wisconsin, and Minnesota comprises one third of the total membership although it represents only one sixth of the number of states.

Analysis of membership distribution indicates areas where appreciation of medical history is more or less concentrated, and consequently where the Association can serve its larger groups. Ohio has been specially honored by being host to a regional and an Annual Meeting. Chicago has an impressive number of members, and should at some time be considered as a meeting-place. Another loyal group is in the far west. It might prove difficult to induce any large number of the 55 per cent of the membership along the Atlantic coast to attend a meeting on the west coast. However, might it not be advisable to resume the holding of an occasional regional meeting? If the California group so desires, should we not sponsor a winter meeting for our western members? Perhaps the new Executive Committee might consider this suggestion.

There is another membership classification which I have been unable to differentiate accurately. One class is actively engaged in the teaching of medical history,

while the other class maintains membership because of a deep appreciation of the backgrounds of medicine and enjoyment of articles in the *Bulletin*. Some of those assigned to teach medical history devote only a part of their time to this subject, and earn their livelihood from another specialty. All these classes have a common desire to build up and enjoy the study of the history of medicine. Each additional group increases our sphere of influence. Without a broad base of support it may sometimes prove difficult to maintain societies and departments for this study.

The Association is organized to promote the study of medical history among residents of the United States and Canada. Such an objective presupposes that all geographic groups and various classes in the membership shall be given every encouragement in the different activities of the Association if we are to maintain a live national association.

I have enjoyed working with the officers and members of the Association and am deeply appreciative of their cooperation.

Respectfully submitted,

HOWARD DITTRICK, M. D.
Secretary

II. REPORT OF THE TREASURER, DR. BENJAMIN SPECTOR

May 25, 1947 to December 31, 1947

BALANCE ON HAND, MAY 25, 1947		$1623.07*
RECEIPTS		
1944 dues for 1 member at $5.00	$ 5.00	
1945 dues for 1 member at $5.00	5.00	
1946 dues for 1 member at $5.00	5.00	
1947 dues for 27 members at $5.00	135.00	
1947 dues for 1 society at $10.00	10.00	
1948 dues for 3 members at $5.00	15.00	
		175.00
Cash on Hand		$1798.07

DISBURSEMENTS

Expense incurred in connection with annual meeting of the Association in Cleveland, May, 1947.

Check No. 12, May 27, 1947	$ 25.00
Check No. 13, May 27, 1947	25.00
Check No. 14, May 27, 1947	21.74
Check No. 16, May 27, 1947	12.15

*In National Shawmut Bank, Boston	$1393.18
In Royal Bank of Canada	229.89
	$1623.07

Check No. 17, May 27, 1947	9.27	
Check No. 18, May 27, 1947	6.50	
Check No. 19, May 29, 1947	100.00	
		$ 199.66

Stamps and mailing charges

Check No. 15, May 27, 1947	$ 10.00	
Check No. 22, June 7, 1947	12.08	
Check No. 32, Oct. 14, 1947	15.00	
Check No. 38, Dec. 13, 1947	4.32	
		$ 41.40

Printing and stationery

Check No. 20, June 3, 1947	$ 105.02	
Check No. 26, June 16, 1947	2.45	
Check No. 29, Aug. 13, 1947	2.50	
Check No. 37, Dec. 13, 1947	11.25	
Check No. 39, Dec. 20, 1947	22.50	
		$ 143.72

Subscription to Bulletin of History of Medicine

Check No. 24, June 9, 1947		$ 206.00

Secretarial work for Secretary and Treasurer

Check No. 27, July 7, 1947	$ 10.00	
Check No. 28, Aug. 13, 1947	10.00	
Check No. 30, Sept. 2, 1947	10.00	
Check No. 31, Oct. 1, 1947	10.00	
Check No. 33, Oct. 16, 1947	75.00	
Check No. 34, Nov. 1, 1947	10.00	
Check No. 36, Dec. 2, 1947	10.00	
		$ 135.00

Bank charges for handling account

Shawmut Bank, July statement	$ .37	
Shawmut Bank, Nov. statement	.20	
Shawmut Bank, Dec. statement	.11	
		$ .68

The Johns Hopkins Press

Check No. 21, June 7, 1947	$ 5.50	
Check No. 25, June 14, 1947	.75	
		$ 6.25

Subscription to Janus for 1940

Check No. 35, Nov. 15, 1947	$ 59.50	
		$ 59.50

Lantern and cloak-room charges		
Check No. 23, June 7, 1947	$ 8.00	
		$ 8.00
Total Disbursements		$ 800.21
Cash on Hand, May 25, 1947	$1798.07	
Total Disbursements	800.21	
		$ 997.86
On Deposit, Royal Bank of Canada		229.89
Actual Balance on Hand, Dec. 31, 1947		$ 767.97

Report of the Treasurer

January 1, 1948–May 25, 1948

BALANCE ON HAND, JANUARY 1, 1948		$ 997.86*
RECEIPTS		
1947 dues for 1 member at $5.00	$ 5.00	
1948 dues for 430 members at $5.00	2150.00	
1948 dues for 18 societies at $10.00	180.00	
1949 dues for 3 members at $5.00	15.00	
1950 dues for 1 society at $10.00	10.00	
		$2360.00
Return from Horan Letter Service (wrong addition) April 28, 1948	$ 1.00	
Cash on Hand		$3358.86
DISBURSEMENTS		
Stamps		
Check No. 40, Jan. 8, 1948	$ 15.00	
Check No. 42, Jan. 24, 1948	.97	
		$ 15.97
Subscription to Institute of the History of Medicine		
Check No. 41, Jan. 11, 1948	$ 114.00	
Check No. 47, April 8, 1948	1690.00	
		$1804.00

* In National Shawmut Bank, Boston	$767.97
In Royal Bank of Canada	229.89

Bank charges for handling account		
Shawmut Bank, Jan. statement	$ .22	
Shawmut Bank, Feb. statement	2.83	
Collection, Canadian bank	.53	
Check returned (voucher missing) Feb. statement, Shawmut bank	5.00	
		$ 8.58
Penn-Sheraton Hotel		
Check No. 49, May 7, 1948		$ 50.00
Printing		
Check No. 43, Mar. 6, 1948	$ 21.89	
Check No. 44, Mar. 6, 1948	7.34	
Check No. 45, Mar. 20, 1948	38.26	
Check No. 46, Mar. 30, 1948	28.36	
Check No. 48, May 4, 1948	25.75	
		$ 121.60
Total Disbursements		$2000.15
Total Cash		$3358.86
Total Disbursements		$2000.15
		$1358.71
On Deposit, Royal Bank of Canada		229.89
Actual Cash on Hand, May 25, 1948		$1128.82

The reports of the Secretary and the Treasurer were read and approved. A motion was carried that the Secretary be permitted to purchase a copy of the Association's Osler Medal for the museum of the Cleveland Medical Library. The President appointed Dr. W. F. Norwood and Dr. Robert G. Paterson as an auditing committee to examine the Treasurer's report.

III. REPORT OF THE ACTING EDITOR

During the year 1947 Volume XXI of the *Bulletin of the History of Medicine* was issued bimonthly with a total pagination of 997 pages. These included:

1 preface
32 main articles
4 texts and documents
3 bibliographies
3 notes and comments
13 reports on medico-historical news and activities
38 book reviews
42 illustrations
1 index

The articles were contributed by 26 members and 14 non-members of the Association.

Of the material published, the following items pertained particularly to the American Association of the History of Medicine:

1. The Transactions of the Twentieth Annual Meeting of the Association, published in two parts in the July-August and the September-October issues (pp. 417-572, 637-822).
2. List of Members of the Association (pp. 823-841).
3. Bibliography of the History of Medicine of the United States and Canada—1946 (pp. 573-617).
4. Announcements of the Association or its Constituent Societies in every issue of the year.

Through a reduction of the size of the *Bulletin* from 10 to 6 issues a year, the annual deficit which has been carried by the Johns Hopkins University was reduced somewhat, although rising costs of paper, printing and binding have offset part of the anticipated savings. The financial report of the *Bulletin* for the year 1947 is as follows:

Receipts

Subscriptions of members of the A. A. H. M.	$2136.00
Subscriptions to the Johns Hopkins Press	1843.05
Sale of back numbers	395.02
Advertisements	183.75
Contribution of the Johns Hopkins University	2978.42
	$7536.24

Expenditures

Printing and binding of Volume XXI	$6702.56
Postage, express charges, etc.	207.78
Commission to the Johns Hopkins Press	625.90
	$7536.24

The total number of copies of each issue printed was 1,100, and the cost of production and distribution per volume amounted to $6.85.

Volume XXII is in the course of publication. The January-February, 1948 issue has already been sent to subscribers, the March-April issue is in print and will be distributed during the next few weeks. The May-June issue is in type and will probably be issued in late June or early July. A serious attempt has been made to bring the publication of the *Bulletin* up to date, and it is hoped that this will be accomplished with the July-August issue which is now almost entirely in type.

One *Supplement to the Bulletin* was issued bearing the 1947 date-line. It is:

No. 9. NOAH WEBSTER: Letters on Yellow Fever Addressed to Dr. William Currie. With an Introductory Essay by Benjamin Spector. Baltimore: The Johns Hopkins Press, 1947. vi + 110 pp. frontispiece.

Supplement No. 10, which is a study of the "Aetiological Principle of Pyaemia in Ancient Egyptian Medicine" by Robert O. Steuer, is currently in the process of publication and should be issued during the next few months.

Respectfully submitted,

GENEVIEVE MILLER,
Acting Editor.

Since Miss Genevieve Miller is terminating her connection with the Johns Hopkins University, she tendered her resignation as of July 1, 1948. At this time Dr. Shryock read two letters from Dr. Chesney, Dean of the School of Medicine of the Johns Hopkins University, intimating that the present funds available for support of the *Bulletin* would cease at the end of 1948 and a new agreement between the University and the Association would have to be arranged regarding publication after that date. The second letter indicated that it seemed possible to carry on the publication of the *Bulletin* through 1949. It was moved by Dr. Larkey and seconded by Dr. Leake that the President appoint a committee to confer with the University on this matter and report to the Executive Committee. The motion was carried.

IV. REPORTS OF COMMITTEES

Dr. John F. Fulton submitted the following report for the *Committee on the Fielding H. Garrison Lecturer*. After due consultation with Drs. Leake and Middleton, the other members of the Committee, Dr. Erwin H. Ackerknecht was unanimously chosen, and he has accepted the nomination for 1948.

"Among the other names considered was that of Professor Roland H. Bainton who occupies the chair of ecclesiastical history at Yale University and is probably the foremost authority on Michael Servetus. The Committee expressed the hope that Professor Bainton may be considered for the Garrison Lectureship at some future date."

Dr. Galdston reported that no award would be made in the 1948 contest for the *Osler Medal*. A new announcement of conditions pertaining to the award has been formulated and printed. Dr. Galdston recommended that rejected essays be returned to candidates, together with appropriate comments.

Dr. S. V. Larkey presented the report of the *Committee on Revision of the Constitution and By-Laws*. The revised By-Laws were approved by unanimous vote of the Council.

Dr. E. R. Long reported for the *Committee on Relations with Central and South America*. He spoke of a recent visit to South America by Dr. Jackson, and some publications obtained during that visit were displayed.

Dr. Rosen reported on the work of the *Committee on Research in American Medicine*. Among other developments there has arisen an interest in the publication of accumulated material to supplement the Kelly-Burrage American Medical Biography. Dr. Shryock appointed Dr. Ackerknecht (Chairman), with Drs. Middleton, Fulton, Krumbhaar, and Norwood as members of a committee to consider such a publication and report to the Executive Committee.

Miss Genevieve Miller stated that the work of the *Committee on Medical*

Bibliography had been completed and displayed the galley proofs of published material. Dr. Fulton reported briefly for the *Liaison Committee* with the History of Science Society. Dr. Shryock proposed that the Association apply for membership in the Council of Learned Societies. Dr. Galdston questioned the advisability of such a step. A motion to appoint a committee to study such a proposal and report to the Executive Committee was carried. Dr. Shryock named to this committee Dr. Krumbhaar and Dr. Larkey.

Dr. Temkin for the *Program Committee* said that he had received wholehearted cooperation from the members in the preparation of the program. However, the guest speaker for the dinner meeting had cancelled his engagement and Dr. C. D. Leake had graciously accepted the emergency assignment to deliver the address.

V. REPORTS OF CONSTITUENT SOCIETIES

*The American Institute of the History of Pharmacy, Madison, Wis.**

The outstanding feature in the work of the Institute during the period from September 1, 1946 to August 31, 1947 covered by this report was the publication and distribution of the book by the Director, entitled *Pharmacy's Part in Society*. The idea has been to give evidence, properly arranged and well documented and illustrated, of what pharmacy's place and part has been throughout the ages, and of the tasks which the profession has met and will always have to meet for the sake of society.

Of the other publications of the Director, partly in reprints contributed to the members of the Institute, three papers on *The History of American Pharmacy* seem especially worthy of notice (" Pharmacy in Colonial North America," " Pharmacy in the United States Prior to the Civil War," " Development of Modern Pharmacy in the United States "; *The Merck Report*, April, July and October, 1947). A pamphlet entitled *The First Five Years of the American Institute of the History of Pharmacy* was issued giving a concise survey of the development of the A. I. H. P. from 1941 to 1946.

The publication of *pharmaceutico-historical pages* (pictures with explanatory legends and references to literature) in the monthly, *The American Pharmacist*, started in February 1941, was continued. The pictures published were reproductions of seventeenth and eighteenth century paintings and engravings.

Among the addresses and extracurricular lectures delivered by the Director the following two may be mentioned:

1. One World in Pharmacy. Address on the occasion of the national meeting of Kappa Epsilon at Madison, Wisconsin, April 19, 1947;
2. The Specifics in Therapy. Lecture presented to medical students.

On the occasion of the 1947 annual meeting of the American Pharmaceutical Association at Milwaukee, Wisconsin, *joint meetings of the American Institute of the History of Pharmacy and the Section on Historical Pharmacy of the American Pharmaceutical Association* were held on August 27 and 28.

* Extract from a detailed report which can be obtained on request.

At the session of August 27, presided over by officers of the A. Ph. A. Section, the Director of the Institute presented a paper on *The Origin of the Term "Calomel."* The session of August 28, presided over by officers of the A. I. H. P., was devoted to a *Symposium on Pharmaceutical Education Before 1900.* The following speakers dealt with the topics listed:

1. Dr. Olive Cole, Baltimore, Md.—"Historical Notes on the President of the Old Maryland College of Pharmacy."
2. Dr. David L. Cowen, Newark, N. J.—"Notes on Pharmaceutical Training in New Jersey." (In the absence of the author the paper was read by Dr. C. L. Cox.)
3. Mr. Harold C. Freking, Cincinnati, Ohio—"Gleanings from the Early History of the Cincinnati College of Pharmacy."
4. Dr. J. Hampton Hoch, Charleston, S. C.—"A Survey of the Development of Materia Medica in Our Pharmacy Curriculum from 1821 to 1900."
5. Mr. John E. Kramer, Philadelphia, Pa.—"1847-1947, in Memoriam of J. P. Remington and S. P. Sadtler, Both Born in 1847." (In the absence of the author the paper was read by Dr. Austin Dodge.)
6. Dr. George Urdang, Madison, Wisc.—"Edward Kremers, Reformer of American Pharmaceutical Education."
7. Mr. H. George Wolfe, New York—"James Cutbush—Author, Teacher, Apothecary General."

The information services of the A. I. H. P. have been taken advantage of by people within and without pharmacy and the related sciences and professions. This, naturally, resulted in a remarkable increase of the correspondence of the Institute. The international connections have been strengthened and expanded.

GEORGE URDANG,
Director.

The Barlow Society for the History of Medicine

The Barlow Society held but one meeting during the year 1947-1948. The eighth George Dock Lecture was presented May 6, 1948. Two papers were given. "The Curiosities of Oriental Medicine," which dealt mainly with Chinese medical practice, was given by Dr. Albert Fields, who during his stay in the Orient made intensive studies in the lore and practices of Chinese, Japanese, and Indian medical practitioners. He cited a number of ancient Chinese medical epigrams with much contemporary appeal, discussed their empiric diagnostic standards in the light of modern knowledge, and spoke of the contributions of the Orient to modern pharmacology. Dr. Fields also displayed a number of medical carvings in wood and ivory.

Dr. H. Russell Fisher, who has long been interested in Rokitansky, gave an exceptionally good paper in which he discussed the political and geographic circumstances which made Vienna the European center of medicine. He described the influence of the Dutch School, Maria Theresa's foresight in obtaining the

services of outstanding men such as Van Swieten and De Haen, origins and developments of the Allgemeine Krankenhaus, and finally, the tremendous contributions made there by Rokitansky. Dr. Fisher displayed an interesting group of lantern slides, many of them taken by himself while on the continent, but of particular interest were a set of slides given him by Dr. Hermann Chiari. These are the slides used by him in the course on the History of Pathology which is given to medical students in the Institute of Pathologic Anatomy at Vienna. The development of pathology in the Italian School, notably under Morgagni and in France under Bichat and Cruveilhier, as forerunners to the development of pathology in Central Europe, was ably discussed.

Dr. Dock was present, to the delight of the large audience, and spoke in his usual wise and graceful manner.

Dr. Norwood was appointed delegate to the Annual Meeting of the History of Medicine.

EDGAR F. MAUER, M. D.
Secretary-Treasurer.

Boston Medical History Club

The Club is embarking upon the twenty-eighth year of its continuous existence. The membership is 75, and the treasury is in a healthy condition as of May 18, 1948, with all bills paid and no outstanding obligations and a good balance on hand to begin the new year. The officers for 1947-1948 were Dr. Benjamin Spector, President, and James F. Ballard, Secretary-Treasurer and Curator. The officers elected for 1948-1949 are Dr. Reginald Fitz, President; Dr. John Fallon, Vice-President; and James F. Ballard, Secretary-Treasurer and Curator; with a council of five, as follows:

Dr. Madelaine R. Brown
Dr. Harold Bowditch
Dr. Benjamin Spector
Dr. Paul D. White
James F. Ballard

The office of Curator is permanent and has been held by Mr. Ballard since the beginning of the Club, and in connection with the meetings he has exhibited books and other material relative to the subjects under discussion, and selected from the treasures of the Boston Medical Library.

During the season 1947-1948 four meetings were held as follows:

November 17, 1947 "Transfusion controversy in the 17th century."
Harcourt Brown, Ph. D.

January 12, 1948 "Some scientific and medical aspects of Benjamin Franklin in relation to medicine and science."
I. Bernard Cohen, Ph. D.

March 22, 1948 "From poesie to piracie to physicke, being the logickall odyssey of Euphues his legattee. By Thomas Lodge, of lincolne's inne, gent."
John Fallon, M. D., Sc. D.

May 18, 1948 "Aspects of Italian contributions to the structure and growth of American medicine."
Benjamin Spector, M. D.
"Some notable medical figures of the Italian renaissance."
James F. Ballard

The papers were excellent and well presented and diverse in character. The final paper of the year was presented by Dr. Spector, Professor of the History of Medicine at Tufts College School of Medicine, and Professor of Anatomy at the same institution.

The Boston Medical Library is sponsor and patron of the Club and it might be said that it is one of the activities of the Library, as it furnishes a meeting-place and secretarial service. The Club came into existence as a result of proposals made to the Trustees of the Library by James F. Ballard. At the same time Mr. Ballard proposed that the Club should be made one of a group comprising a national organization.

The Trustees accepted the first proposition and the Club was established. They did not accept the responsibility of fostering a national society.

The membership is loyal in its financial and moral support but not in its attendance. Some means must be devised to insure a reasonable attendance at meetings. This is the problem confronting the Club for the next season of its activities.

JAMES F. BALLARD.

The Caducean Society, The Creighton University School of Medicine, Omaha, Nebraska

Our Society suffered, as did many other extracurricular activities, during the war-time accelerated program of the medical school and the group ceased to function during 1944. Following the return to the normal schedule, a reorganization meeting of interested students and faculty members was held February 28, 1947 which resulted in the reestablishment of the Caducean Society. Mr. Robert Poole was elected student chairman and Dr. W. J. Reals serves as faculty adviser and secretary.

Meetings are held each month during the academic year and are open to the public. In addition, the Society sponsors occasional seminars and presentations of historical films in the medical school. A section of the medical school library known as the Caducean collection contains a number of rare volumes which are the gifts of several faculty members and students; it is the aim of the Society to augment this group of books from time to time by purchases.

Our financial support comes solely from voluntary contributions which are solicited once each year from faculty and students. Currently, our treasury shows a surplus after payment of expenses.

Each year a group from the Caducean Society presents papers before the history of science section of the Nebraska Academy of Sciences which meets at the University of Nebraska, Lincoln. Four such papers were presented in May 1947 and six papers will be presented in May 1948.

Membership in the Caducean Society is contingent upon presentation of a paper on some phase of medical history to the group. Papers so presented are then in most instances published in the *Bulletin of the Creighton University School of Medicine*. There is much interest in the history of medicine since a required course in that subject is given by Dr. C. M. Wilhelmj, Dean, who in addition has always given his enthusiastic support to our Society.

We hope that our growth will continue during the coming year. In order to further interest in the aims of our Society we hope to publish Volume II of *The Collected Papers of the Caducean Society* during the next academic year.

Meetings of the Caducean Society with speakers and their subjects follow:

February 28, 1947	"A History of Puerperal Sepsis with a Brief Sketch of the Life of Ignaz Semmelweis." Dr. Frank P. Murphy.
March 28, 1947	"The Epidemic Manias of the Middle Ages." Mr. Sidney Merlis.
May 16, 1947	"Endeavors of Jean Fernel." Dr. C. S. Simkins. "History of Obstetrical Forceps." Mr. Jerome Benson.
November 14, 1947	"Ephraim McDowell, Pioneer in Abdominal Surgery." Dr. Frank P. Murphy. "History of Genetics." Mr. George Beirne "History of the Caducean Society." Dr. William J. Reals.
January 16, 1948	"Egyptian Mummification." Dr. C. S. Simkins. "History of Ether Anesthesia." Dr. Kenneth Latteral.
February 27, 1948	"Life of William Beaumont." Mr. Anthony Owca. "History of Scurvy." Dr. Victor E. Levine.

WILLIAM J. REALS, M. D.
Secretary.

The Hahnemann Society of the History of Medicine

The Hahnemann Society of the History of Medicine has not yet recovered from the stultifying effects of World War II.

It is expected that some definite activities will be initiated at our projected meeting in The Haddon Hall, Atlantic City, on June 14, 1948.

WILLIAM H. WOLFRAM, M. D.

The History of Medicine Society of Tulane University

The History of Medicine Society of Tulane University has had an excellent year, and had 17 meetings including one banquet meeting. The program is listed herewith:

During the course of the year the Society has had a very interested and active attendance at its meetings, and has been able to add to the capital sum of the Endowment Fund for the purchase of history of medicine books, which it contributed to the Rudolph Matas Library of Tulane University last year. It has also begun to establish its Award Funds on a permanent basis, these having been given on a year-to-year basis in the past.

At the banquet meeting, which was held May 14, we had the pleasure of having Dr. Chauncey Leake, Dean of Texas Medical School at Galveston, give an excellent paper on "The Development of Ethics in Medicine."

Awards of the Society: The I. I. Lemann Award for the best discussion was presented to Mr. Robert Peace, senior in the Medical School, for his paper on "Pioneer American Pathologists;" the Rudolph Matas Award was presented to Mr. Alton Ochsner, Jr., senior in the Medical School, for his paper, "Charity Hospital, Mother of Vascular Surgery"; and the B. Bernard Weinstein Award for original work in the history of medicine was presented to Mr. William Vildibill, a senior, for his paper on "The Doctors Musser."

The officers for the past year were: President, Alton Ochsner, Jr.; Vice-President, William Vildibill; Secretary, Bill Yeager; Treasurer, John Terry; and Recording Secretary, Richard Smith.

For the 1948-1949 Session: President, Isidore Yager; Vice-President, Leo Horan; Secretary, Richard Smith; Treasurer, Milton Eichler.

Program of 1947-1948 Session

September 12, 1947	History of Tulane School of Medicine. Illustrated. Dr. Hiram Kostmayer.
September 26, 1947	Visual Aids to Modern Medical Education. Illustrated. Mr. Tom Jones, Chicago, Medical Illustrator.
October 17, 1947	Charity Hospital, Mother to Modern Vascular Surgery. Illustrated. Alton Ochsner, Jr.
October 31, 1947	Maximaw. Dr. Charles Midlo
November 14, 1947	The Doctors Musser. William Vildibill
November 21, 1947	Superstitions Related to the Eye. Dr. Charles Bahn
January 16, 1948	Slave Care on the Antebellum Plantation. Illustrated. Mr. William D. Postell, Medical Librarian, L. S. U. Medical School.
January 30, 1948	Pioneer American Pathologists. Robert Peace

February 13, 1948	History of the Cardiac Arrhythmias. Dr. William Sodemann
February 27, 1948	Splenic Conjectures. Leo Horan.
March 19, 1948	History of Cesarean Sections. Stanley Skillicorn
April 2, 1948	Harvey Cushing. Ramsey MacCordy.
April 9, 1948	Trudeau and Before. Illustrated. Dr. Julius Wilson.
April 16, 1948	Influence of Serendipidy on Medicine. Illustrated. Dr. Alton Ochsner.
April 30, 1948	History of Modern Medical Psychiatry. Melvin Sabshin.
May 7, 1948	History of Bronchial Asthma. Illustrated. Dr. Vincent Derbes.
May 14, 1948	*Banquet.* Development of the Ethics and Etiquette of Medicine. Illustrated. Dr. Chauncey Leake, Galveston, Dean of Texas Medical School.

Officers

	1947-1948	1948-1949
President	Alton Ochsner, Jr. New Orleans	Isadore Yager Brooklyn
Vice-President	William Vildibill Columbia, S. Car.	Leo Horan New Orleans
Secretary	Isadore Yager Brooklyn	Richard Smith Fort Worth
Treasurer	John Terry Galesburg, Ill.	Milton Eichler Bronx, N. Y.
Jr. Secretary	Richard Smith Fort Worth	To be chosen

B. Bernard Weinstein, M. D.
Faculty Advisor.

Indiana Association of the History of Medicine, Indianapolis.

The Indiana Association of the History of Medicine held a meeting at the home of Dr. and Mrs. Edgar F. Kiser, of Indianapolis, on October 1, 1947, at which Dr. William M. Loehr, of Indianapolis, presented a treatise on "The Great French Clinicians of the Nineteenth Century."

Dr. Loehr's study covered the period 1800-1899, and he enumerated the nineteenth-century immortals who contributed to medicine countless inventions and technics of applied science. He termed the nineteenth century an auspicious era for the growth of scientific medicine.

Dr. Kiser reported to the Association on the dinner given in honor of Dr. Henry E. Sigerist, which was attended by some three hundred men and women from all over the United States, on the occasion of Dr. Sigerist's resignation as Director of the Institute of the History of Medicine of The Johns Hopkins University.

A second meeting of the Association was held at the Indiana State Library and Historical Building, at Indianapolis, on December 11, 1947, in connection with the annual Indiana History Conference. The program was devoted chiefly to a discussion by Dr. William DePrez Inlow, of Shelbyville, on "The Indiana Physician as Geologist and Naturalist."

Dr. Inlow's report disclosed that the Doctor of Medicine has played an important role in the development of natural science in Indiana. "It was natural that his concern first with the science of man later should find expression in the exploration of other fields. He became a botanist almost by necessity. He had need for medicinal plants; he roved the forest and field in collecting them. He treasured his herbarium. He made notations and reported concerning both the flora and fauna. He became a collector of fossils, and the pursuit of palaeontology led him into the intricacies of stratigraphy. It was frequently to him the public authorities had to turn for assistance in geological survey."

At both of these meetings enthusiastic response was accorded by the membership of the Association.

NELLA H. ROKKE,
Secretary-Treasurer.

The Johns Hopkins Medical History Club, Baltimore, Md.

Of the three meetings customarily held by the Johns Hopkins Medical History Club during the academic year, the first on December 17, 1947, was a combined meeting with the Society of Hygiene of the Johns Hopkins University. It was devoted to the general subject of "Changing Concepts in Medical Therapy." This subject was illustrated by the history of the treatment of syphilis. Dr. Owsei Temkin gave a historical outline dealing with the treatment of syphilis before 1900 under the title of "Therapeutic Trends and the Older Treatment of Syphilis." Dr. J. Earl Moore of the Department of Public Health Administration followed with "Development of Syphilotherapy in the Twentieth Century." As in a similar meeting of the preceding year, a very lively general discussion ensued.

At the second meeting on February 16, 1948, Dr. George W. Corner spoke on "The Travels of Dr. Kane," and Dr. Douglas H. K. Lee of the University of Queensland, New Zealand, on "Historical Highlights in Human Climatology."

A third meeting was planned for May with Miss Judica Mendels, who for 12 years worked as an assistant of the Leeuwenhoek Committee of the Netherlands Royal Academy of Science, demonstrating the Leeuwenhoek film in the possession of the Institute of the History of Medicine of the Johns Hopkins University. For technical reasons this meeting will probably have to be postponed to the fall.

The officers of the past year were: Dr. George W. Corner, president; Dr. Sanford V. Larkey, vice-president; and Dr. Owsei Temkin, secretary and delegate to the American Association of the History of Medicine.

O. TEMKIN,
Secretary and Delegate
to A. A. H. M.

The Johns Hopkins University Institute of the History of Medicine

Following Dr. Sigerist's resignation as of June 30, 1947, the Institute has continued to fulfill its function as a teaching and research institution without interruption of its editorial and consultative activities. An announcement of a statistical nature concerning the Institute is to appear in the Medico-historical News and Activities in the *Bulletin*.*

O. TEMKIN

Medical History Club of Charleston, S. C.

Oct. 2, 1947	"History of the South Carolina Medical Association," by J. I. Waring. Met at residence of Dr. Olin Chamberlain, Charleston, S. C.
Nov. 13, 1947	"The Emperor's Itch," by John van de Erve. Met at the residence of Dr. F. E. Kredel, Charleston, S. C.
Dec. 4, 1947	"History of Pharmacognosy," by J. Hampton Hoch. Met at the residence of Dr. John Townsend, Charleston, S. C.
Jan. 8, 1948	"The Renaissance and Some Renaissance Doctors," by R. M. Politzer, Greenville, S. C. Met at the residence of D. B. Remsen, Charleston, S. C.
Feb. 5, 1948	"Cancer—Its Historical Evolution," by H. R. Pratt-Thomas. Met at the residence of John van de Erve, Charleston, S. C.
March 4, 1948	"Life of James J. Watson," by George H. Bunch, Columbia, S. C. Met at the residence of Dr. F. B. Johnson, Charleston, S. C.
April 1, 1948	"History of Neurosurgery," by F. E. Kredel. Met at the residence of Dr. Leon Banov, Jr., Charleston, S. C.

J. I. WARING,
Secretary.

New York Society for Medical History

The past year has had both dark and bright spots for the New York Society for Medical History. On the credit side is the fact that our membership lists have been brought up to date. At present, the Society has a total of 48 members in good standing. Also, the financial status of the Society is favorable. On May 1, 1948 there was a balance on hand of $344.66. On the debit side may be recorded the fact that meetings, in many instances, have been but slenderly attended. It is indeed curious to note that many people are willing to contribute financially to a good

* This has been published in the July-August issue of the *Bulletin* for 1948, pp. 486-488.

cause and yet make little effort to provide what is even more important—personal participation.

Papers presented during the 1947-1948 season were:

October "Medicine in the Aleutians"—Samuel Berenberg.

December "Constantine Rafinesque, Pioneer Naturalist"—Samuel Feder.

January "Virchow, a Case History"—Benjamin Spector.

February "Early History of Aphasia and the Psychology of the 18th Century"—Wladimir Eliasberg.

April "A Tribute to Victor Robinson"—Anna Tjomsland and Herman Goodman.

In November 1947 and May 1948, the Society held meetings jointly with the Section on Historical and Cultural Medicine of the New York Academy of Medicine. The subjects were, respectively: "Medicine under the Dictators" (Italy, Germany and Spain)—Mario Volterra, George Rosen, Julio Alverez del Vayo; and "Biological Warfare, Past, Present and Future"—Theodore Rosebury.

GEORGE ROSEN, M. D.
Chairman.

Ohio Committee on Medical History and Archives of the Ohio State Archeological and Historical Society.

The Tenth Annual Meeting of the Ohio Committee on Medical History and Archives met in Columbus, Ohio, on April 17, 1948 in connection with the Sixty-Third Annual Meeting of the Ohio State Archeological and Historical Society.

A Review of the Committee Activities, 1938-1948, was presented by the Secretary and is published in the *Bulletin of the History of Medicine*, May-June 1948 issue.

Papers were presented as follows: "Notes on Montgomery County Medicine, 1890-1945," by Curtis Ginn, M. D., Dayton; "Organized Medicine, 1890-1945," by Clyde Cummer, M. D., Cleveland; "Development of the Teaching of Anatomy in Ohio, 1890-1945," by Linden F. Edwards, Ph. D., Columbus; "The Cincinnati Lancet-Clinic," by David Tucker, Jr., M. D., Cincinnati; "The Toledo Medical College," by Louis R. Effler, M. D., Toledo; "The Establishment of Dermatology and Syphilology as a Medical Specialty in Northern Ohio," by Willard T. Marmelzat, M. D., Cleveland; "The Development of the Prevention of Communicable Diseases in Ohio, 1890-1945," by Herbert M. Platter, M. D., Columbus; and "The Columbus Medical Journal," by Jonathan Forman, M. D., Columbus.

These papers will appear in the October-December 1948 issue of the *Ohio State Archaeological and Historical Quarterly.*

The interest in Ohio medical history continues unabated by the small group of regular contributors, with additional recruits secured from year to year. It is safe to say that the labors of the Ohio Committee are having an influence upon the work of general historians in the State and that the importance of medical matters in the social life of the people is coming to be recognized.

ROBERT G. PATERSON,
Secretary.

Providence Medical History Club, Providence, R. I.

In a letter of April 23 to Dr. Dittrick, Dr. Roland Hammond states:

"The club has been inactive since the war and no meetings have been held. We have every reason to believe that a meeting will be held in the near future, probably before the summer vacation. After that, we hope meetings will be resumed at regular intervals."

Section on the History of Medicine, Richmond Academy of Medicine

The fourteenth annual meeting of the Section on the History of Medicine of the Richmond Academy of Medicine was held on March 9 at the home of the Academy. Dr. Emily Gardner, Vice-President of the Academy, called the meeting to order and extended a brief welcome to the Section members, their wives and guests. The floor was then turned over to Dr. Harry J. Warthen, Jr., Chairman of the Section, who conducted the meeting.

The minutes of the last meeting were read and stood approved.

Dr. Warthen announced that during the year 30 new members had been added to the roll-call of the Section.

Dr. Warthen reported that according to the Section by-laws the officers are elected to serve for two years. In view of this fact, he requested that he be allowed to resign as Chairman of the Section for 1949 as he will be installed as President of the Academy in January 1949. Dr. T. Dewey Davis moved that the resignation of Dr. Warthen be accepted and that Dr. A. S. Brinkley, Vice-President, be appointed Chairman to succeed him. This motion was seconded and passed.

The first talk of the evening was given by Dr. Sidney G. Page and was entitled, "The Green-Tin Case." Dr. Page's address proved to be a short history of Dr. George Bagby, a distinguished Virginia physician who gave up the practice of medicine to follow his desire to be a writer. He became one of the outstanding authors and lecturers of his day. On behalf of Dr. Bagby's daughter, Miss Ellen Bagby of Richmond, Dr. Page presented the Section on the History of Medicine with the green-tin case housing the three medical diplomas received by Dr. Bagby: (1) his diploma from the University of Pennsylvania Medical School, (2) his diploma from the Obstetric Institute, (3) his diploma from the Pennsylvania Hospital.

The second speaker of the evening was Dr. Thomas W. Murrell. The title of his paper was "Attempted Re-creation from an Old Notebook." Dr. Murrell had come across two old notebooks belonging to a Dr. Miller of Montgomery County, Va., and dated 1813. From these he attempted to re-create the personality, the medical and political outlook of this man. So skillfully did he weave his picture that it was easy for the audience almost to visualize Dr. Miller as a complete personality. Dr. Murrell read some excerpts from the old handwritten notebooks which were delightfully revealing. These gifts were also presented to the Section and received on its behalf by the Chairman, Dr. Warthen.

Dr. M. Pierce Rucker introduced the guest speaker of the evening, Dr. Henry R. Viets of Boston, Mass., whose address was entitled, "James Thacher and His Influence on American Medicine." James Thacher was a young medical officer in

the Revolutionary War who practiced his profession at Plymouth, Mass., for 60 years. Dr. Viets spoke of his interesting descriptions of his duty with the Virginia Regiment, the surrender at Yorktown, the French Fleet, George Washington and Lafayette. During his years of practice he wrote seven books for which he is well known.

Following this interesting and scholarly paper Dr. Rucker moved that Dr. Viets be elected an honorary member of the Section. This motion was seconded and passed. The meeting then adjourned and a reception was held in the Academy dining room for the members and guests.

M. Pierce Rucker, M. D.

The William Welch Society, New York University College of Medicine

The war-time acceleration program left its mark on the William Welch Society, for only this year has it been able to rise to its familiar pattern from the inactivity of the war years. Since the Society, composed of medical students, has always followed a policy of having its members write and deliver the papers heard by the group, the effort had to be made to get students convinced they were gaining by devoting time to such work.

The Society had an original reorganization meeting in October 1947. The middle classes, sophomore and junior, took over the reins. The next meeting was to get part of the aura and atmosphere of medical history by a general get-together at Faculty Adviser Dr. Claude Heaton's home, where his extensive collection of old medical books served as background for his thoughtful remarks on the history of medicine.

During the course of the school year, students presented papers on the historical aspects of pediatrics, on the story of anesthesia, on the history of medical genetics, and on episodes in the history of surgery.

It must be said that the program was not lacking in aims, but that the new group of medical students needs to be shown the efficacy and pragmatic value of a knowledge of medical history. The plans of the Society for next year, its twentieth anniversary, include a reestablishment of the requirement that for membership there shall be an acceptable paper on some phase of medical history. We then propose to carry the program activity to the whole student body by means of lectures, seminars, and other devices in cooperation with the faculty. The whole purpose is to instill into the rushing, "too-busy" medical student an awareness of his profession-to-be as a way of living in continuity with the past and helping to mold its future.

Irvin Kraft,
Secretary.

VI. NEW BUSINESS

The Secretary reported on invitations received for future meetings. Colonel McNinch described the status of the History of World War II. The meeting was then resolved into a meeting of the entire membership.

THE BUSINESS SESSION OF THE TWENTY-FIRST ANNUAL MEETING

Thursday, May 27, 1948

I. REPORTS

Dr. Norwood for the Auditing Committee assured the Association that the books of the Treasurer were in good order. Report accepted.

Dr. Larkey described the proposed alterations in the Constitution. The revised Constitution was adopted unanimously.

II. ELECTIONS

Dr. Norwood, chairman of the Nominating Committee, presented the names of the following candidates for election:

President, Dr. Henry R. Viets

Vice-President, Dr. Ralph H. Major

Secretary, Dr. Sanford V. Larkey

Treasurer, Dr. Owsei Temkin

Acting Editor, Miss Genevieve Milier

Members of Executive Committee, Dr. Howard Dittrick, Dr. George Rosen, and Dr. R. H. Shryock

Members of Nominating Committee, Miss Genevieve Miller, Dr. Benjamin Spector, and George Urdang

The Secretary announced that he had received letters of declination from Dr. Larkey, Dr. Temkin and Miss Miller for nomination for Secretary, Treasurer and Acting Editor respectively. Under the rules of the revised Constitution, the Chairman called for nominations from the floor. Dr. Benjamin Spector as Secretary, Dr. Jonathan Forman as Treasurer, and Dr. Owsei Temkin as Acting Editor as of July 1 were duly nominated. The entire slate with the changes indicated was elected.

The name of Dr. Henry E. Sigerist had been proposed by letter, in accordance with the Constitution, as a candidate for Honorary Membership in the Association. The proposal was seconded by Dr. J. F. Fulton and was carried unanimously. The Secretary was instructed to send a cable to Dr. Sigerist notifying him of this action and conveying greetings to Mrs. Sigerist and himself.

III. MISCELLANEOUS

The next order of business was the discussion of the place for our next Annual Meeting. Invitations held over from last year were those from New Haven and Boston. Dr. Heaton extended an invitation for the Association to meet in New York. Dr. A. H. Whittaker presented a strong invitation to meet in Detroit. The

Secretary recalled that in 1947 the Association had favored alternating meeting places between the East and the West to serve the convenience of the entire membership and to stimulate increased growth of the membership. Invitations were then read from Dr. E. F. Horine of Louisville, Ky., unable to attend because of illness, President McLain of Transylvania College, President Vance of the Kentucky State Medical Society, and the President and Secretary of the Fayette County (Ky.) Medical Society. These invitations called attention to the rich store of medical history in Kentucky and invited the Association to hold the next meeting in Lexington. Mr. Ballard extended a warm invitation for the Association to meet in Boston in 1950. Dr. Larkey, Dr. Krumbhaar, and Dr. Long thought we might occasionally return to Atlantic City. Other members pointed out that there was no atmosphere of medical history in such a meeting place. The Secretary pointed out that the selection of the meeting place was the prerogative of the President. Dr. Galdston thought it might be helpful to the President to know the opinion of the present meeting and asked the Chairman to call for a show of hands. The Chairman acceded to this request and those favoring the various cities were as follows:

Lexington, Ky.	13
Atlantic City	11
Detroit	9
New York	2

The possibility of a regional meeting on the West Coast was also suggested.

Miss Miller called attention to the newly created Scottish Society of the History of Medicine and asked that the Secretary be empowered to send greetings. So ordered.

Dr. Temkin announced that Dr. Max Neuburger would be in this country about July 1 and thought it would be a gracious gesture on the part of the Association to send him a letter of welcome. The Secretary was instructed so to do.

Dr. Krumbhaar called attention to the necessity for care of the records of the Association. It was moved and carried that a committee composed of Dr. Dittrick, Dr. McDaniel, Dr. Spector and Dr. Temkin be appointed to set up rules governing this matter and to report to the Executive Committee.

HOWARD DITTRICK, M. D.,
Secretary.

AMERICAN ASSOCIATION OF THE HISTORY OF MEDICINE

Constitution and By-Laws

Embodying the amendments adopted at the Twenty-first Annual Meeting, Philadelphia, May 27, 1948.

I. Purpose

Article 1. The purpose of this Association shall be to promote research, study and interest in the history of medicine including the history of public health, dentistry, pharmacy, nursing, medical social work and allied subjects.

Its aims may be achieved in the following ways, by:

a. lending its authority and support to local organizations having a similar purpose;
b. organizing meetings;
c. granting awards;
d. issuing publications;
e. functioning as the American and Canadian Sections of the International Society of the History of Medicine.

II. Membership

Article 2. Constituent Societies.

Any organization in the United States and Canada—such as societies, clubs, institutes, libraries—having a purpose similar to that of the Association shall be eligible as a Constituent Society.

Such organizations may be elected as Constituent Societies by a majority vote of the Council.

Membership in a Constituent Society shall not imply personal membership in the Association.

Each Constituent Society shall elect a delegate—a member of the Association—who shall thus be ex officio a member of the Council of the Association. The delegate shall keep the Secretary of the Association informed concerning activities of the Constituent Society which he represents and shall present a report at the Annual Meeting.

Article 3. Active Members.

Any citizen or resident of the United States or Canada interested in the history of medicine shall be eligible for Active Membership on nomination in writing by a member of the Association.

Active Members shall be elected by majority vote of the Council.

Article 4. Corresponding Members.

Persons of any nationality shall be eligible for Corresponding Membership on nomination in writing by an active member of the Association.

Corresponding Members shall be elected by majority vote of the Council.

Article 5. Honorary Members.

Honorary Membership may be conferred upon persons of any nationality who have made outstanding contributions to the history of medicine or science.

Honorary Members shall be elected by a majority vote of members present at the Annual Meeting on nomination by the Council.

Names of proposed candidates for Honorary Membership must be submitted in writing to the Council at least one month before the Annual Meeting.

Article 6. Membership may be forfeited for reasons deemed sufficient by the Council.

III. Officers

Article 7. The officers of the Association shall be a President, Vice-President, Secretary, Treasurer, and Editor. They shall be Active Members of the Association. Honorary officers may be elected by a two-thirds vote of the Council.

Article 8. The President shall be elected at every second Annual Meeting by a plurality vote of the Active Members present, to hold office for the ensuing two years or until his successor takes office. The retiring President shall be ex officio a member of the Council.

The President shall preside at all meetings of the Association and Council. He shall appoint all nonelective committees and the delegates to the International Society, subject to confirmation by the Executive Committee, and shall be an ex officio member of all committees. He shall act as chairman of the Executive Committee.

Article 9. The Vice-President shall be elected at every second Annual Meeting by a plurality vote of the Active Members present, to hold office for the ensuing two years or until his successor takes office. He shall act in the absence of the President.

Article 10. The Secretary shall be elected at every second Annual Meeting by a plurality vote of the Active Members present, to hold office for the ensuing two years or until his successor takes office. He shall keep minutes of Association and Council meetings, keep a list of members of the Association and of the American and Canadian members of the International Society, a list of delegates of the Constituent Societies, and inform the Treasurer of changes in these lists, send out notices, render an annual report and conduct the necessary business with the officers of the International Society. He shall send to the chairman of the Nominating Committee, not later than January 15th of any year in which there are to be elections at the Annual Meeting, a complete list of members, a list of Delegates of the Constituent Societies, a complete list of officers for the preceding six years, a list of the offices to be filled, and copies of the Constitution and By-Laws. He shall keep in close touch with the members of the Council and collect all data concerning

medico-historical activities in the United States and Canada, and perform the other duties customarily pertaining to the office.

Article 11. The Treasurer shall be elected at every second Annual Meeting by a plurality vote of the Active Members present, to hold office for the ensuing two years or until his successor takes office. He shall keep the Secretary and the Editor informed at all times of changes in the list of members who are in good standing, shall be responsible to the Association for the safekeeping of its funds, and shall perform the other duties customarily pertaining to this office.

Article 12. The Editor shall be elected at every second Annual Meeting by a plurality vote of the Active Members present, to hold office for the ensuing two years or until his successor takes office. He shall edit the Transactions of the Association and whatever other publications the Association may decide to issue.

IV. The Council

Article 13. The Council shall consist of the officers and past presidents of the Association, the delegates to the Permanent International Committee of the International Society, and the delegates of the Constituent Societies.

The Council shall hold a meeting every year preceding the Annual Meeting, at which it shall elect members, receive the reports of the officers and committees for transmission to the Annual Meeting, transact other business specifically delegated to it, and initiate consideration of matters of interest to the Association.

V. Executive Committee

Aricle 14. There shall be an Executive Committee of eight members of which the President, Vice-President, Secretary, Treasurer, and Editor shall be ex officio members; the rest shall be elected by a plurality vote of the Active Members present, at the same Annual Meeting at which the officers are elected. The President shall act as chairman of the committee.

It shall conduct the business affairs of the Association in the interval between the Annual Meetings and to it shall be delegated in that interim the rights and powers of the Council, including the election of Constituent Societies, Active and Corresponding Members. It shall fill all vacancies ad interim. It shall report to the Council before the Annual Meeting, and at such other times as the Council may request.

VI. Activities

A. *Meetings*

Article 15. An Annual Meeting shall be held at a time and place designated by the President. The order of business shall be arranged by the President.

Article 16. The Association shall cooperate with medical and other learned societies in the organization of local meetings devoted to the history of medicine and allied subjects and shall lend its authority and support to all efforts and activities directed toward promoting the history of medicine.

B. *Awards*

Article 17. In order to stimulate interest and research in medical history, when the funds of the Association permit, it may establish medals which the Association may award to authors of outstanding scholarly contributions to the history of medicine or to students, as specified in the By-Laws.

Article 18. A distinguished lecturer may be invited to give a Fielding H. Garrison Lecture at the Annual Meeting, under conditions specified in the By-Laws.

C. *Publications*

Article 19. The Association may publish its transactions independently or with an established journal. The transactions shall include such material as the Editor, after consultation with the Council, decides.

D. *Relations to the International Society of the History of Medicine*

Article 20. The Association shall function as the American and Canadian Sections of the International Society.

Article 21. Membership in the Association shall not ipso facto constitute membership in the International Society. Those wishing to join the International Society shall apply to the Council of the Association which shall recommend them for election to membership by the Permanent International Committee of the International Society.

American and Canadian members shall pay the dues of the International Society to the Treasurer of the Association.

The members of the International Society shall have the following privileges:

a. They may attend the International Congresses of the History of Medicine (only members of the International Society and residents of the country in which the congress takes place are admitted to the congresses).

b. They will receive the publications of the International Society.

Article 22. The President of the Association shall appoint two members who must also be members of the International Society to represent the Association in the International Society. One, a citizen of Canada, shall serve as national delegate for Canada; the other, a citizen of the United States, as national delegate for the United States. The President shall in addition appoint two members to serve as alternate delegates. Their appointment must be approved by the Permanent International Committee of the International Society.

Article 23. The national delegates shall be members of the Permanent International Committee of the International Society. They shall keep the President and the General Secretary of the International Society constantly informed about medico-historical activities in the United States and Canada. They shall attend the meetings of the Permanent International Committee and represent the Association at International Congresses.

Article 24. In case neither the delegates nor their substitutes are able to attend an International Congress, the President shall have the power to appoint delegates for the occasion.

VII. Dues

Article 25. The annual dues for Constituent Societies, for Active and Corresponding Members shall be fixed at such levels as the Council shall determine. Honorary Members shall pay no dues and shall have no vote.

The dues shall cover subscription to the regular official publications of the Association.

VIII. Amendments

Article 26. Proposed amendments to the Constitution must be submitted in writing to the Council at least one month before the annual Meeting. The Constitution may be amended at the time of the Annual Meeting by a three-fourths affirmative vote of all Constituent and Active Members present or voting by mail.

BY-LAWS

I. The Fielding H. Garrison Lecture

Article 1. The President shall annually appoint a committee to make recommendations to the Executive Committee as to the selection of the Fielding H. Garrison lecturer for the Annual Meeting of the Association, the final decision being reserved to the Executive Committee.

Article 2. The lecturer need not be a member of the Association.

Article 3. The lecture must be unpublished and the result of original research.

Article 4. The Association shall pay a suitable honorarium.

Article 5. The lecture may be published in the transactions of the Association.

II. The William H. Welch Medal

Article 1. As soon as the Association has established the medal, the President shall annually appoint a committee to make recommendations to the Executive Committee as to the awarding of the medal, the final decision being reserved to the Executive Committee.

Article 2. The medal shall be awarded to citizens or residents of the United States or Canada for particular contributions of outstanding scholarly merit in the field of medical history.

Article 3. The medal shall be awarded not oftener than once each year, and need not be awarded every year.

III. The William Osler Medal

Article 1. The President upon taking office shall appoint a committee to make recommendations to the Executive Committee as to the awarding of the medal, the final decision being reserved to the Executive Committee.

Article 2. The medal shall be awarded to students of medicine in the medical schools of the United States and Canada for unpublished essays that either are the result of original research or show an unusual appreciation and understanding of historical problems.

Article 3. The chairman of the Committee shall approach the approved medical schools before October 1 of any given year, inviting their students to submit suitable essays in the field of medical history.

Article 4. The medal shall be awarded not oftener than once each year and need not be awarded every year.

Article 5. The Executive Committee may consider the publication of an essay awarded the William Osler Medal in the transactions of the Association.

IV. Standing Committees

Article 1. There shall be a Nominating Committee of three Active Members of the Association, elected biennially by a plurality vote of the Active Members present at the Annual Meeting in the Association's regular election years. The Committee shall elect its own chairman.

The Nominating Committee shall prepare in each election year an official ballot of nominees for officers and members of the Executive and Nominating Committees, which shall be submitted to the Executive Committee at least two months before the Annual Meeting, and be sent to the voting membership at least one month before the Annual Meeting. The Committee shall propose no more than one candidate for each office to be filled. On notification to the chairman of the Executive Committee at least two weeks before the Annual Meeting, nominations may be made from the floor. Upon a declaration by the President, at the meeting, of a vacancy in the official slate, nominations may be made from the floor without prior notification.

Article 2. The President shall annually appoint a Program and Entertainment Committee of five members, whose duties shall be to arrange the program and entertainment for the Annual Meeting. It shall have the power to accept or reject any paper, and to set the time limit for each.

Article 3. The President shall have the power to increase the membership of appointive standing committees.

V. Amendments

The By-Laws may be amended by a two-thirds affirmative vote of the Council.

MEDICO-HISTORICAL NEWS AND ACTIVITIES

NATIONAL NEWS

Library of Congress

In order to celebrate the first hundred years of the American Association for the Advancement of Science, the Library of Congress is currently displaying an exhibition on "Our Presidents and Science." The exhibit will remain on view in the south gallery, second floor, of the Main Library Building until the end of November.

Army Medical Library

George Miller Sternberg (1838-1914), famous as a pioneer in bacteriology in this country as well as Surgeon General of the Army (1893-1902), is the subject of a sixth exhibit in the series "Famous Men of Army Medicine."

College of Physicians of Philadelphia

Members of the Association who were present at the last annual meeting in Philadelphia will remember that Dr. Maurice S. Jacobs mentioned that he was working on a plan for a unified course in Highlights of Medical History to be held at the College of Physicians and to be available to all the Philadelphia Medical Schools. This plan was agreed upon by the Deans and a series of nine lectures by various speakers on the following subjects has been projected: Ancient Medicine, Greco-Roman Medicine, Medieval Medicine, Renaissance Medicine, Eighteenth Century, Nineteenth Century, Twentieth Century, American Medicine, and Social Medicine.

Diamond Jubilee of Nursing

In 1873, three nurses' training schools based on the Florence Nightingale system were established at Bellevue Hospital, the Massachusetts General Hospital and at New Haven (Connecticut Training School for Nurses). The 75th anniversary of professional nursing will be officially inaugurated during Nursing Progress Week, November 14-20, 1948. It will also celebrate the memory of Linda Richards (1841-1930) who graduated in 1873 and is said to have been America's first professional nurse. The Jubilee is sponsored by the American Nurses Association.

NEWS FROM ABROAD

India

Dr. D. V. Subba Reddy, Professor of Physiology, Madura Medical College at Madras, has been put in change of a scheme of the Government of India to examine the old medical books in medical libraries in India and to prepare a special catalogue. The scheme is to be a preliminary step to the organization of a central Library Bureau in the Office of the Director General of Health Services in India. Dr.

Reddy is circulating among Indian institutions a simple classification which is to help in the examination of medical books written and printed before 1900. Pertinent books will either be classified on the spot by trained librarians where available, or sent to Dr. Reddy's office in Madras or, if too numerous, will be inspected by him at the local institutions which are requested to send him lists of their holdings. The scheme seemed all the more urgent since it had been brought to the notice of the Government of India that there were in various parts of the country a number of valuable old medical books and historical material unknown, not utilized, and gradually disappearing. Dr. Reddy is a Corresponding Member of the American Association of the History of Medicine and is well known to the readers of the *Bulletin* from his many contributions to the history of Indian medicine.

CORRECTION

Upon Dr. A. Raymond Mills' request, we wish to correct a mistake whereby an "M. D." inadvertently slipped in among his qualifications in the List of Contributors to the July-August issue of the *Bulletin*, p. 499, l. 15. This line and the first word of the following one should read: "A. Raymond Mills, M. R. C. S., L. R. C. P., Deputy Director of Public Health," etc.

BOOK REVIEWS

SUNG, TA-JÊN. *Chung Kuo I Yo Pa Chieh T'u* (Eight Masters of Chinese Medicine). Shanghai: Medical Research Society of China, 1943.

Eight Masters of Chinese Medicine is a recent publication of the Medical Research Society of China, which was founded in 1935 for the purpose of specializing in the study of Chinese medicine and Chinese medical history. Since it is part of a larger project, Dr. Sung made no attempt to treat the subject exhaustively; the lives and works of four practicing physicians and four pharmacologists are discussed within the limits of 29 leaves, which would be equivalent to something over 100 pages in English translation. There are, in addition, 8 charming illustrations, depicting each of the eight masters engaged in the specific work for which he attained fame.

Each of the men discussed belongs to a different period of China's long and insufficiently explored medical history and for that reason is important to the medical historian not only for his individual accomplishments but also as a representative of his age. Ko Hung, the first of the eight masters of medicine, lived from 281-361 A. D., during the Chin dynasty. As an ardent Taoist he devoted much of his time to alchemy and wrote on longevity and immortality. His medical fame rests on his *Prescriptions for Emergencies*, containing descriptions of diseases which modern medical historians have identified as leprosy and smallpox. The second physician, Chang Chung-ching, takes us back to the Han dynasty of the second century A. D. and is known for his descriptions of various types of fevers. His text, the *Shang Han Lun*, is generally translated as "Treatise on Typhoid." Hua T'o, born in 190 A. D., during the period of the Three Kingdoms, is reported to have been a brilliant diagnostician and surgeon. Although his own writings have not come down to us, the *Annals of the Later Han Dynasty* describe his diagnostic feats and his daring, but successful, operations performed after the administration of a narcotic wine to his patients. The last of the physicians described in this book is Wang Ch'ing-jên of the Ch'ing, or Manchu, dynasty, who was born in 1768 A. D. In his *Errors of Medicine Corrected* he attempted to rectify the ancient misconceptions still prevailing in the medical literature of his time. But although he studied anatomy and physiology by examining and dissecting corpses of children, by watching executions, and by means of animal experiments (methods which were still unusual in eighteenth century China, since they were in opposition to Confucian tenets), he himself was so steeped in traditional beliefs that his corrections were admirable for their intent rather than for their accuracy.

The four pharmacologists are T'ao Hung-ching of the Liang period, Su Ching of the T'ang period, T'ang Shên-wei of the Sung period, and Li Shih-chên of the Ming period. T'ao Hung-ching is the compiler of the *101 Formularies*, a collection of the most common remedies of the sixth century A. D. The other three men wrote different versions of the *Pên Tsao*, or "Great Herbal," the original of which is popularly believed to have been compiled by Shên Nung, one of China's legendary emperors.

This little book represents an attempt to explore the achievements of some of China's great men of medicine, and might well be translated for the benefit of Western medical historians. China's four thousand years of history have produced a wealth of medical material that has never been adequately treated. While the *Eight Masters* merely sketches in the most summary fashion the works of a few physicians and pharmacologists, makes no comment and draws no conclusions, it is nevertheless a noteworthy effort on the part of modern research to penetrate the obscurity of the undiscovered past, and should be followed by more extensive works of the same nature.

ILZA VEITH.

RENÉ VERRIER. *Études sur Arnaud de Villeneuve*. Leiden: E. J. Brill, 1947. 88 pp., 6 plates. Guilders 5.00.

We still know relatively little about the life of Arnald of Villanova, one of the greatest scholastic physicians and scholars of the Middle Ages, particularly about his early life. We are not sure where he was born; in Villanova, of course, but there were so many *villae novae*, new burgs. Today there are still 7 communities of that name in the Provence, 7 in the Lower Languedoc, and 14 in Catalonia. The three provinces bordering on the north-western corner of the Mediterranean were very homogeneous in culture, and their languages were very similar. It can be shown from Arnald's works that he knew and spoke the three languages, Catalan, langue d'oc and Provençal proper. He reached the height of his career in Barcelona at the court of Aragon and this spoke in favor of a Catalan origin of the family. He, furthermore, had very close connections with Valencia where he became a cleric, where he owned property and where his only child, a daughter by name of Mary, became a nun. Thus it was generally assumed, particularly since the studies of Menendez Pelayos, that he was born in a Villanova of the diocese of Valencia probably between the years 1235 and 1240.

On the other hand, there can be no doubt that Arnald had also very close connections with Montpellier and the Provence. He was in Montpellier in the early sixties, married there as did also his sister who married a man by name of Blaise who was probably a merchant. Arnald, furthermore, dedicated his treatise, *De conservanda juventute*, written between 1309 and 1311, to Robert of Anjou, Count of Provence, King of Naples and Sicily, with the words: *ex innatae fidelitatis devotione pro salute vestra merito semper oro*. If this devotion resulting from an innate loyalty was more than a courtier's phrase then it might well hint at a close relation with the Provence.

Verrier indeed thinks of the possibility of Arnald having been born in Villeneuve-lès-Vence, today's Villeneuve-Loubet, a township between Antibes and Nice. He cannot prove it and is cautious in presenting his thesis as a mere hypothesis, one, however, that deserves serious consideration. His chief method of approach consists in investigating the history of some of Arnald's relatives, particularly of his two nephews, the sons of his sister.

Jean Blaise (Johannes Blasii), the youngest son, was born at Montpellier between

1276 and 1281. He was in Venice as a child perhaps on one of his father's business trips, lost his parents around 1290, studied medicine and surgery at Montpellier where he might have been a student of Henri de Mondeville. In 1305 he was established as a physician-surgeon in Marseille, had a brilliant career, went into business investing money in a ship, lending money on pawns, buying real estate and tax collections. We know much about his affairs because, having no children, he made a will leaving his estate to the Hospital of the Holy Ghost at Marseille, so that we are well informed about his property. In his will he also returned 100 pounds that Arnald's wife had once given him to Arnald's daughter, Sister Mary at Valencia. The height of his career was reached when he became surgeon to Robert of Anjou who gave him revenues at Villeneuve-lès-Vence where he died in 1341.

Jean's elder brother, Armengaud Blaise (Armengaudus Blasii), played a much more important part in the history of medicine because he was one of the pioneer translators of Arabic and Hebrew medical books. Born in Montpellier around 1264 he studied medicine there between 1284 and 1289, graduating at a stormy moment in the school's history. His works include three original books, *Aphorismi*, a *Tabula antidotarii* and a treatise *De remediis*, and in addition seven Latin translations of works of Avicenna, Maimonides, Galen and Prophatius (Jacob b. Mahir ibn Tibbon), translations that he made either directly or with the help of a Jewish interpreter. He succeeded his uncle Arnald first as non-resident, then from 1303 on as resident physician to the court of Aragon at Barcelona and probably died in Avignon in the service of the Pope between 1309 and 1312. His life also exemplifies the close relations between Provence, Languedoc and Catalonia.

Verrier's book does not solve any of the controversial points in the biography of Arnald but it is an extremely stimulating study based on careful interpretation of original documents, and from it we learn a great deal about Arnald's family, and a gifted family it was. I still believe that Arnald was born in the diocese of Valencia, but I am not as sure about it as I was before I had read this book.

HENRY E. SIGERIST.

NICOLAI STENONIS *Opera Theologica*. Cum prooemiis ac notis Germanice scriptis ediderunt KNUD LARSEN et GUSTAV SCHERZ. Editio secunda. Hafniae: Nyt Nordisk Forlag, 1944-47. Vol. I: XII + 508 pp. Vol. II: 574 pp.

"Le bon Monsieur Stenonis Danois, Evêque titulaire du Titianopolis et Vicaire Apostolique (comme on parle) à Hannover . . . étoit grand Anatomiste et fort versé dans la connaissance de la Nature; mais il en abandonna malheureusement la recherche, et d'un grand Physicien il devint un Théologien médiocre." Thus was Leibniz' verdict on Steno in the *Theodicée* in 1710. At this time Leibniz must have strongly felt the disappointment at the failure of his efforts to bring about a union of the churches and confessions, efforts in which Steno had taken part when officiating at Hannover, between 1677 and 1680, and which had earned him a much more favorable opinion on the part of Leibniz who gave his fresh personal impression as follows: "Nous avons icy M. Stenonis, Evesque de Titiopolis fort connu déjà du temps passé pour les découuertes qu'il a faites dans l'Anatomie; maintenant

il s'applique à la controverse ou il fait paroistre beaucoup de jugement et de moderation." Yet even then Leibniz took exception to Steno's "sophistic methods" in disputation, and a perusal of his theological works collected and reprinted in the present magnificent volumes seems to bear out Leibniz's statement of 1710. There is very little in these theological writings that interests the historian of science and medicine *per se* and indeed hardly anything that recalls the brilliant scientific past of the author. Most of his anatomical works had been published prior to his conversion (November 1667)—his researches into the purely muscular nature of the heart in 1663, his work on muscles and glands one year later, his discovery of the parotid duct in 1660 and that of the lacrymal duct in 1661, i. e. when he was between 22 and 26. It is true, however, that his *Anatomy of the Brain* and his great geological and crystallographical work *De Solido intra Solidum Contento* appeared two years after his conversion (1669). The former is directed against the mechanistic views of Willis and Descartes and the latter embodies his discovery of the fundamental fact that in all variations of shape the angles of any one crystalline substance are constant, as well as attempts at bringing his geological research into line with the sacred tradition of the development of the earth. It is therefore difficult to deny a mutual influence of the scientific and theological aspects of his work and it is from this point of view in the first place that a publication of the collected theological writings should be welcomed. They should be studied together with Vilhelm Maar's edition of the scientific works (*Opera Philosophica* 1910) to which they form a most desirable complement—justifying the infinite trouble which the editors have taken in collecting, editing, introducing and commenting upon the known and unknown manuscripts and printed books by Steno and his adversaries, famous and obscure alike. The first volume contains the treatises and more comprehensive letters, the second one the sermons and a third volume is intended to bring the "Epistolae" in the strict sense of the word. Steno, one of the most brilliant figures of XVIIth century science, formed in the second part of his short life one of the centres of theological controversy which brought him into direct personal contact with Spinoza and Leibniz. Posterity can rightly claim the facilities for gaining insight into all aspects of his work from first-hand sources, notably those which illuminate XVIIth century thought in general. There is, for example, the "Epistola De Vera Philosophia ad Novae Philosophiae Reformatorem" (Florence 1675) addressed to Spinoza as the interpreter and reformer of Cartesianism. It eloquently probes and unmasks one of the principal difficulties of this philosophy: "Execute, quaeso, omnes demonstrationes tuas, et vel unam mihi afferto de modo quo cogitans et extensum uniuntur, quo principium movens corpori unitur, quod movetur . . . quomodo materiae in materiam impulsus ab anima materiae unita percipiatur; sed et ipsius materiae quam, quaeso, aliam notitiam nobis datis praeter quantitatis mathematicum examen circa figuras, nec dum de ullo particularum genere nisi hypothetice probatas?" God is obvious in his works, why then deny His words, because they seem to contradict the demonstrations and hypotheses of the human mind? And why introduce new principles unknown to the great sages and fathers of old? To see in sentences like this anticlimax to the XVIIth century spirit of independent research and indeed to the spirit of Steno's own work would be hardly justified in view of the significance of

religion and philosophy in the scientific movement of this period and the solid scientific achievements which other religious scientists have to their credit in this century of genius.

WALTER PAGEL.

EARL D. BOND. *Dr. Kirkbride and His Mental Hospital.* Philadelphia: J. B. Lippincott Co., 1947. 163 pp., illustrated. $3.50.

More than a century has elapsed since Dr. Kirkbride and his psychiatric contemporaries founded the organization which later became the American Psychiatric Association. Its most important accomplishment, during his lifetime, was the expansion of hospitalization for mental patients on a Continental scale. In 1844 there were only twenty-five such hospitals in the United States and Canada; within forty years these had multiplied fivefold. For exposing abuses and influencing legislation, much credit must be given to the zeal and political acumen of Dorothea Dix. It is largely due, however, to Dr. Kirkbride and his peers that lofty standards were set up and the ideals of humane care, long before sponsored by Pinel, Chiarugi and Rush, were realized in practice, after the typical American fashion. If in the last quarter of the nineteenth century, in the hands of too faithful disciples, these principles and methods tended to become stereotyped, and hence out-moded and sterile, it can hardly be laid to his and their charge. Prior to the group activity alluded to above, Dr. Kirkbride had in 1841 become the first head of a new and practically independent mental hospital (a department of Pennsylvania Hospital, 1751), which still occupies and values its century-old, but wisely designed and solidly built buildings. These facts are well known to all American psychiatrists, and vaguely to American physicians in general, as well as to a small lay group in and about Philadelphia.

The present moment is sufficiently removed from the period in question to afford a reasonable perspective, and accumulated material adequate for a re-evaluation of Dr. Kirkbride's achievements. These reached their acme before the Civil War; his subsequent work was mainly an extension and amplification of principles already formulated. Several "notices" and brief biographies appeared shortly after his death in 1883, but these were obviously, to a certain degree, biassed by the spell of his personality, and an almost reverential acceptance of his ideas. He and his associates, of the age of Victoria, were too serious minded, too sure of their ground to suit the mood of the present, at once more frivolous and more uncertain of its standards. The biographer Strachey of Victoria herself has humanized his subject, and at the same time reduced her stature by a witty and somewhat sardonic exploitation of her petty ideals of behavior, her plebeian virtues, and her personal foibles. Other biographers have used similar devices to lend spice to their narratives. Dr. Kirkbride's career offered no such opportunities, unless one were to make fun of his undue devotion to duty: he seldom left the hospital grounds except to attend church, and contrariwise he insisted that no night should pass without entertainment for his patients!

Drawing on his knowledge of the "Fabulous Forties," Dr. Bond has embroidered a witty and fascinating background, illuminated by a great variety of citations,

illustrating the fads, the idiosyncracies, the superstitions, the prejudices, the corruptions, as well as the ideals, ambitions, the grandiose achievements of the times. Against this background the devotion, steady purpose, the broad and human interests of Dr. Kirkbride stand out with a certain grandeur.

The *Contents* sufficiently describe the detailed matter of the book. Briefly: *Part One*, "The Man" (pp. 1-50) details Dr. Kirkbride's Quaker background, his education, and his early experience in general practice in the Philadelphia of the Thirties. The atmosphere of the period is portrayed for us by maps, contemporary letters, descriptions, quotations (e. g. Mrs. Trollope on "the day of a Philadelphia lady"; and Eberlein on "when Society first took a bath.")

Part Two, "The Hospital" (pp. 51-162) covers Dr. Kirkbride's life from the time he gave up his surgical ambitions (1840) and devoted his life to his new hospital and to his new specialty, until his death forty odd years later. Here again we find the same careful picture of his environment, at the hospital and in the Philadelphia of the Forties, and amidst wider interests and associations. Dr. Kirkbride himself was most widely known for his book on the construction and management of hospitals for the insane (1854 and 1880). His "plan" (variously modified) was adopted by more than thirty State Hospitals and by many private institutions. The latter third of the book deals in part with unjustifiable, and unsuccessful, attempts by paranoid patients, unscrupulous lawyers and sensation-seeking journalists to discredit Dr. Kirkbride and his hospital; in part with the Indian summer of his life, during and after the Centennial of 1876.

This is a book which should have a wide appeal, not only to professional groups and persons, in one way or another personally involved, but also to those who have an interest in the cultural atmosphere, already tinged with romance, of that interesting and critical period in American history, when so many social reforms had their genesis.

C. B. Farr.

Morris Fishbein. *A History of the American Medical Association 1847 to 1947.* With the Biographies of the Presidents of the Association by Walter L. Bierring. And with Histories of the Publications, Councils, Bureaus and other official Bodies. Philadelphia and London: W. B. Saunders Company, 1947. xvi + 1226 pp. Illustrated. $10.00.

Any publication dealing with the history of an organization that has played such a tremendous part in the rise of American medicine is important, and thus we welcome the present book although its title is misleading. We are not presented with a history but with a collection of materials for a history which still remains to be written. Indeed, the development of such a great organization does not take place in a vacuum but in a society. The A. M. A. is one aspect of American medicine which in turn is an aspect of American civilization. Thus the foundation of the Association would have to be studied in the light of conditions, social, economic, political, cultural that prevailed in the country one hundred years ago. Its development with its great achievements and obviously also some failures would have to

be seen in relation with the opening up of the West, the frontier, the rapid increase in population through immigration, with industrialization and urbanization, the wars from the Civil War to World War II, America's colonial policy and economic expansion. How did the Association react to these challenges? How did it influence events? The recent conflicts between the A. M. A. and the people of the country, the contradiction between a progressive policy in scientific and a conservative policy in social matters, or the attitude of the Association toward colored physicians, require analysis.

What is given to us as a History of the A. M. A., filling almost one half of the volume, represents about the most primitive type of historiography, a mere chronicle of events, treated journalistically in short paragraphs, sometimes hardly more than listed, or simply abstracts from the Transactions. It is, of course, difficult to have such a volume ready for a given date but the subject is so important that it would have deserved a more thorough and more competent presentation. I also think that it would have been better to have the History written by an outsider, by a social historian. Dr. Fishbein has for many years not only been the highly efficient editor of the A. M. A. but its very soul and more than anybody else has shaped its policies, on the scene or behind it. We, therefore, cannot possibly expect him to take a detached attitude and in writing the history of the last decades he was obviously pleading his own case.

The biographies of the 101 presidents of the A. M. A. can hardly be called biographies, because they do not give a real picture of the men. They are merely the obituary-type of eulogies. But they are welcome because they provide data which otherwise might not be easy to find. Many presidents were not famous physicians but obscure practitioners, local medical politicians whose name the history of medicine would never have registered if they had not been at the head of a great national organization for one year.

By far the most interesting part of the volume is the one devoted to the activities of the Councils and Bureaus and to the Publications of the A. M. A. They have been written by different authors, some well, some not so well, but they are all captivating and revealing. Most of the Publications are so good and so well known all over the world that they well deserve full praise. The Councils and Bureaus are the chief centres of activity of the Association and some of them have been very successful and very progressive while others have been the strongholds of reaction. The activities of all of them are interesting and constitute an important chapter in the history of American medicine. A great deal can be read between the lines of these seemingly matter-of-fact reports.

Now that the Association has entered its second century I wish it would found one more Bureau, namely, one of its own history. Its task would be to investigate the history of its first century, leisurely, in detail, in relation with other aspects of American civilization, so that some day the real history of the A. M. A. could be written. But I repeat that the present volume is a most welcome collection of historical materials.

HENRY E. SIGERIST.

WILLIAM DOOLIN. *Wayfarers in Medicine.* London: William Heinemann, Medical Books Ltd. 1947. 284 pp., 39 ill., 21 shillings.

Mr. William Doolin, a Dublin surgeon, and editor of the *Irish Journal of Medical Science,* has collected here his essays on medical history, twenty-seven in number, covering once more the very well known from the papyros Ebers through Arderne and Vesalius down to Bernard, Lister, Osler, and the Dublin school, but happily avoiding major errors. Thus no extensive discussion of these essays seems to be indicated. The unpretentious grace of Mr. Doolin's style and presentation, the variety in subject matter, the nice illustrations will endear this volume to those approaching the history of medicine in a spirit similar to the author's.

ERWIN H. ACKERKNECHT.

DONALD WYMAN. *The Arboretums and Botanical Gardens of North America.* Waltham, Mass.: the Chronica Botanica Co. New York: Stechert-Hafner, Inc., 1947. [Chronica Botanica, Vol. 10, No. 5-6, pp. 395-498, illustrated] $1.50.

This study is the result of a decision made by the American Association of Botanical Gardens and Arboretums at its annual convention in St. Louis in November, 1946, to produce a directory of active botanical gardens and arboretums in North America. Dr. Wyman, horticulturist at the Arnold Arboretum, took pains to make the directory as complete and up-to-date as possible, sending questionnaires in the spring of 1947 to over 200 institutions. Many, it was learned, had closed; others were known to be planned for opening in the near future. Dr. Wyman lists both categories, pp. 461-463. The body of the study, pp. 419-458, is a directory of ninety gardens and arboretums arranged by states and including Canada and Cuba. Most receive a paragraph or two describing in each case the chief functions of the institution, the plant families it best represents, its facilities, and the services it provides to students and to the public. All ninety items include data touching the number of species and varieties, admission for the public, library facilities if any, together with a listing both of publications put out by the institution and of literature relating to it.

The study is not merely a directory. Dr. Wyman includes a chapter of practical advice entitled, " How to Establish an Arboretum or Botanical Garden," pp. 405-418. He lists some of the functions which a founder should consider—growing the plants best adapted to a given region so as to acquaint home gardeners with them, introducing new plants, educating the public in plant culture, trying out new varieties, providing a laboratory for students of plants, improving the region by stimulating intelligent planting, and in general providing instructive recreation for the public. He discusses what to plant, and how, together with matters of maintenance and labeling. A list of locations of small collections of special plants—azaleas, bamboos, cacti etc.—concludes Dr. Wyman's study, pp. 469-477.

The editor of *Chronica Botanica,* Dr. Frans Verdoorn, has abundantly illustrated this issue with some forty plates and maps of gardens dating from the fifteenth century to the present. Mr. W. Baron, of the Chronica Botanica Company, contributes at the end of the issue a short bibliography of botanical gardens and arboretums, pp. 478-481.

GEORGE RAYNOR THOMPSON.